Inspectie Leefomgeving en Transport
Ministerie van Infrastructuur en Milieu

Part MED Subdeel B Deel 1 & 2

Medische eisen voor medische certificaten klasse 1 en 2

inclusief Acceptable Means of Compliance en Guidance Material

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Introductie

Dit document bevat alle wet- en regelgeving met de richtlijnen van Nederland omtrent luchtvaartmedische keuringen klasse 1 en 2 uit Part.MED, subdeel B, deel 1 & 2. De originele en volledige Part.MED, inclusief de AMC, kan gevonden worden op de site van EASA.

Bijna elk hoofdstuk in dit document is opgesplitst in twee delen. Het eerste deel bevat alle Implementing Rules (uitvoeringsvoorschriften), Acceptable Means of Compliance (aanvaardbare wijzen van naleving) en een deel van het Guidance Material (Richtlijnen) in drie verschillende kolommen. Het tweede deel bevat de rest van het Guidance Material dat te groot of te veel is om direct in het eerste deel te plaatsen. In het eerste deel staan zo nodig klikbare links naar het bijbehorende Guidance Material. Zo nodig kan ook de bladwijzerfunctie van Acrobat Reader of de inhoudsopgave op de volgende pagina gebruikt worden voor navigatie.

Dit document bevat geen index en bent u op zoek naar een specifieke term, gebruik dan de zoekfunctie van Acrobat Reader (ctrl+f). Let wel op dat het document deels Nederlandstalig en deels Engelstalig is, dus het kan nodig zijn om in beide talen te zoeken.

In het document is enige informatie opgenomen over verschillende medicaties en aandoeningen, maar missen er ook nog. Artsen moeten contact opnemen met de Medical Assessor over medicatie en aandoeningen die niet zijn opgenomen. Piloten moeten contact opnemen met hun luchtvaartgeneeskundige arts.

Verder zijn er ook andere bijlagen bijgesloten in dit pdf-document. Hier wordt zo nodig dan naar verwezen in het Guidance Material. Deze kunnen gevonden worden door links op de paperclip te klikken in Acrobat Reader of in de werkbalk naar Beeld → Tonen/verbergen → Navigatievensters → Bijlagen te gaan. De lijst met bijlagen kan gevonden worden aan het einde van dit document.

Het wordt zeer op prijs gesteld als niet-werkende snelkoppelingen en andere fouten in dit document aan de autoriteit gemeld worden. Deze zullen dan zo spoedig nagekeken en mogelijk verbeterd worden.

Het is mogelijk om dit document te downloaden en op te slaan voor offline gebruik of om te printen, maar controleer wel regelmatig of er een nieuwe versie beschikbaar is.

Inhoud

MED.B.001 – Beperkingen van medische certificaten

(enkel de wetten en regels met betrekking tot klasse 1 en 2 zijn hier opgenomen)

Implementing rules

(a) *Beperkingen van medische certificaten klasse 1 en klasse 2*

(1) Als de aanvrager niet volledig voldoet aan de eisen voor het medisch certificaat van de betreffende klasse maar het niet waarschijnlijk wordt geacht dat de vliegveiligheid daardoor in gevaar komt, moet het luchtvaartgeneeskundig centrum of de bevoegde keuringsarts:

(i) in het geval van aanvragers van een medisch certificaat klasse 1, de beslissing over geschiktheid van de aanvrager overeenkomstig dit subdeel doorverwijzen naar een autoriteit die het bewijs van bevoegdheid afgeeft;

(ii) in gevallen waarbij niet is voorzien in een doorverwijzing naar de autoriteit die het bewijs van bevoegdheid afgeeft overeenkomstig dit subdeel, beoordelen of de aanvrager in staat is zijn taken veilig uit te voeren met inachtneming van een of meer beperkingen die op het medisch certificaat zijn aangetekend, en het medisch certificaat zo nodig met beperking(en) afgeven;

(iii) in het geval van aanvragers van een medisch certificaat klasse 2, beoordelen of de aanvrager in staat is zijn taken veilig uit te voeren met inachtneming van een of meer beperkingen die op het medisch certificaat zijn aangetekend, en het medisch certificaat zo nodig met beperking(en) verstrekken in overleg met de autoriteit die het bewijs van bevoegdheid afgeeft;

(iv) het luchtvaartgeneeskundig centrum of de bevoegde keuringsarts mag een medisch certificaat met dezelfde beperking verlengen of hernieuwd afgeven zonder de aanvrager naar de autoriteit die het bewijs van bevoegdheid afgeeft door te verwijzen.

(c) Bij de beoordeling of een beperking noodzakelijk is, dient bijzondere aandacht te worden geschonken aan:

(1) de vraag of de officiële medische conclusie erop wijst dat in bijzondere omstandigheden het onvermogen van de aanvrager om aan een numerieke of andere eis te voldoen waarschijnlijk niet van dien aard is dat hij of zij door de uitoefening van de bevoegdheden verbonden aan het aangevraagde bewijs van bevoegdheid de vliegveiligheid in gevaar brengt;

(2) Het vermogen, de vaardigheid en ervaring van de aanvrager die relevant zijn voor de uit te voeren operatie.

(d) *Codes van operationele beperkingen*

(1) Operationeel voorgeschreven meervliegerbeperking (Operational Multi-pilot limitation – OML – uitsluitend klasse 1)

(i) Wanneer de houder van een CPL, ATPL of MPL niet volledig voldoet aan de eisen van een medisch certificaat klasse 1 en is verwezen naar de autoriteit die het bewijs van bevoegdheid afgeeft, moet worden beoordeeld of het medisch certificaat mag worden verstrekt met een OML (dat wil zeggen slechts geldig als of met een bevoegde tweede bestuurder). Deze beoordeling wordt door de vergunningverlenende autoriteit uitgevoerd.

(ii) De houder van een medisch certificaat met een OML mag uitsluitend een luchtvaartuig besturen met een andere piloot die volledig gekwalificeerd is voor het desbetreffende type luchtvaartuig, zelf niet onderworpen is aan een OML en de leeftijd van 60 jaar niet heeft bereikt.

(iii) De OML voor medische certificaten klasse 1 mag uitsluitend worden opgelegd en verwijderd door de autoriteit die het bewijs van bevoegdheid afgeeft.

(2) Operationeel voorgeschreven safetypilotbeperking (Operational safety pilot limitation – OSL – klasse 2)

(i) De houder van een medisch certificaat met een OSL-beperking mag uitsluitend een luchtvaartuig bedienen indien een andere piloot die volledig gekwalificeerd is om op te treden als eerste bestuurder van de desbetreffende klasse of het desbetreffende type luchtvaartuig aan boord is, het luchtvaartuig is uitgerust met dubbele bediening en de medebestuurder een stoel bij het bedieningspaneel bezet.

(ii) De OSL voor medische certificaten klasse 2 mag uitsluitend worden opgelegd of verwijderd door een luchtvaartgeneeskundig centrum of de bevoegde keuringsarts in overleg met de autoriteit die het bewijs van bevoegdheid afgeeft.

(3) Operationeel voorgeschreven passagiersbeperking (Operational passenger limitation – OPL – klasse 2)

(i) De houder van een medisch certificaat met een OPL-beperking mag uitsluitend een luchtvaartuig besturen zonder passagiers aan boord.

(ii) Een OPL voor medische certificaten klasse 2 mag uitsluitend worden opgelegd door een luchtvaartgeneeskundig centrum of de bevoegde keuringsarts in overleg met de autoriteit die het bewijs van bevoegdheid afgeeft;

(e) Er kunnen andere beperkingen worden opgelegd aan de houder van een medisch certificaat indien dit noodzakelijk is om de vliegveiligheid te waarborgen.

(f) Alle opgelegde beperkingen worden in het medisch certificaat van de houder van het bewijs van bevoegdheid gespecificeerd.

Acceptable means of compliance & Guidance material

AMC1 MED.B.001 Limitations to class 1, class 2 (and LAPL) medical certificates

(a) An AeMC or AME may refer the decision on fitness of the applicant to the licensing authority in borderline cases or where fitness is in doubt.

(b) In cases where a fit assessment can only be considered with a limitation, the AeMC, AME or the licensing authority should evaluate the medical condition of the applicant in consultation with flight operations and other experts, if necessary.

(c) Limitation codes:

	Code	Limitation
1	TML	restriction of the period of validity of the medical certificate
2	VDL	correction for defective distance vision
3	VML	correction for defective distant, intermediate and near vision
4	VNL	correction for defective near vision
5	CCL	correction by means of contact lenses only
6	VCL	valid by day only
7	HAL	valid only when hearing aids are worn
8	APL	valid only with approved prosthesis
9	OCL	valid only as co-pilot
10	OPL	valid only without passengers (PPL only)

	Code	Limitation
11	SSL	special restriction as specified
12	OAL	restricted to demonstrated aircraft type
13	AHL	valid only with approved hand controls
14	SIC	specific regular medical examination(s) – contact licensing authority
15	RXO	specialist ophthalmological examinations

(d) Entry of limitations

(1) Limitations 1 to 4 may be imposed by an AME or an AeMC.

(2) Limitations 5 to 15 should only be imposed:

(i) for class 1 medical certificates by the licensing authority;

(ii) for class 2 medical certificates by the AME or AeMC in consultation with the licensing authority;

(3) Removal of limitations

(1) For class 1 medical certificates, all limitations should only be removed by the licensing authority.

(2) For class 2 medical certificates, limitations may be removed by the licensing authority or by an AeMC or AME in consultation with the licensing authority.

GM1 MED.B.001 Limitation codes

TML Time limitation
The period of validity of the medical certificate is limited to the duration as shown on the medical certificate. This period of validity commences on the date of the medical examination. Any period of validity remaining on the previous medical certificate is no longer valid. The pilot should present him/herself for re-examination when advised and should follow any medical recommendations.

VDL Wear corrective lenses and carry a spare set of spectacles
Correction for defective distant vision: whilst exercising the privileges of the licence, the pilot should wear spectacles or contact lenses that correct for defective distant vision as examined and approved by the AME. Contact lenses may not be worn until cleared to do so by the AME. If contact lenses are worn, a spare set of spectacles, approved by the AME, should be carried.

VML Wear multifocal spectacles and carry a spare set of spectacles
Correction for defective distant, intermediate and near vision: whilst exercising the privileges of the licence, the pilot should wear spectacles that correct for defective distant, intermediate and near vision as examined and approved by the AME. Contact lenses or full frame spectacles, when either correct for near vision only, may not be worn.

VNL Have available corrective spectacles and carry a spare set of spectacles
Correction for defective near vision: whilst exercising the privileges of the licence, the pilot should have readily available spectacles that correct for defective near vision as examined and approved by the AME. Contact lenses or full frame spectacles, when either correct for near vision only, may not be worn.

VCL Valid by day only
The limitation allows private pilots with varying degrees of colour deficiency to exercise the privileges of their licence by daytime only. Applicable to class 2 medical certificates only.

OML Valid only as or with qualified co-pilot
This applies to crew members who do not meet the medical requirements for single crew operations, but are fit for multi-crew operations. Applicable to class 1 medical certificates only.

OCL Valid only as co-pilot
This limitation is a further extension of the OML limitation and is applied when, for some well defined medical reason, the pilot is assessed as safe to operate in a co-pilot role but not in command. Applicable to class 1 medical certificates only.

OPL Valid only without passengers
This limitation may be considered when a pilot with a musculoskeletal problem, or some other medical condition, may involve an increased element of risk to flight safety which might be acceptable to the pilot but which is not acceptable for the carriage of passengers. Applicable to class 2 and LAPL medical certificates only.

OSL Valid only with safety pilot and in aircraft with dual controls
The safety pilot is qualified as PIC on the class/type of aircraft and rated for the flight conditions. He/she occupies a control seat, is aware of the type(s) of possible incapacity that the pilot whose medical certificate has been issued with this limitation may suffer and is prepared to take over the aircraft controls during flight. Applicable to class 2 and LAPL medical certificates only.

OAL Restricted to demonstrated aircraft type
This limitation may apply to a pilot who has a limb deficiency or some other anatomical problem which had been shown by a medical flight test or flight simulator testing to be acceptable but to require a restriction to a specific type of aircraft.

SIC Specific regular medical examination(s) contact licensing authority
This limitation requires the AME to contact the licensing authority before embarking upon renewal or recertification medical assessment. It is likely to concern a medical history of which the AME should be aware prior to undertaking the assessment.

RXO Specialist ophthalmological examinations
Specialist ophthalmological examinations are required for a significant reason. The limitation may be applied by an AME but should only be removed by the licensing authority.

MED.B.005 – Algemeen

(a) Aanvragers van een medisch certificaat moeten vrij zijn van elke:

(1) afwijking, aangeboren of verworven;

(2) actieve, latente, acute of chronische ziekte of invaliditeit;

(3) verwonding, letsel of restverschijnselen van een operatie;

(4) bijwerking of effect van al dan niet voorgeschreven therapeutische, diagnostische of preventieve medicatie;

die een mate van functioneel onvermogen zou inhouden die de veilige uitoefening van de bevoegdheden verbonden aan het toepasselijke bewijs van bevoegdheid waarschijnlijk verstoort of waardoor de aanvrager de kans loopt plotseling niet meer in staat te zijn om de bevoegdheden verbonden aan het bewijs van bevoegdheid op veilige wijze uit te oefenen.

(b) Wanneer de beslissing over de medische geschiktheid van een aanvrager voor een medisch certificaat klasse 1 wordt doorverwezen naar de autoriteit die het bewijs van bevoegdheid afgeeft, mag deze autoriteit de beslissing overlaten aan een luchtvaartgeneeskundig centrum, behalve in de gevallen waarin een OML vereist is.

(c) Wanneer de beslissing over de medische geschiktheid van een aanvrager voor een medisch certificaat klasse 2 wordt doorverwezen naar de autoriteit die het bewijs van bevoegdheid afgeeft, mag deze autoriteit de beslissing overlaten aan een luchtvaartgeneeskundig centrum of een bevoegde keuringsarts, behalve in gevallen waarin een OSL of OPL vereist is.

MED.B.010 – Cardiovasculair stelsel

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
(a) Onderzoek ***(1)*** Een standaard 12-afleidingen elektrocardiogram (ecg) in rust en verslag daarvan op klinische indicatie, en: ***(i)*** voor een medisch certificaat klasse 1, bij het onderzoek voor de eerste afgifte van een medisch certificaat, vervolgens iedere 5 jaar tot de leeftijd van 30, iedere 2 jaar tot de leeftijd van 40, jaarlijks tot de leeftijd van 50, en bij alle latere onderzoeken voor verlenging of hernieuwde afgifte; ***(ii)*** voor een medisch certificaat klasse 2, bij het eerste onderzoek na de leeftijd van 40 en vervolgens iedere 2 jaar na de leeftijd van 50.	**Class 1 / 2** ***(a)*** *Examination* *Excercise electrocardiography* An exercise ECG when required as part of a cardiovascular assessment should be symptom limited and completed to a minimum of Bruce Stage IV or equivalent.	Table - Investigation of ECG abnormalities
(2) Uitgebreide cardiovasculaire beoordeling indien klinisch aangewezen. ***(3)*** Voor een medisch certificaat klasse 1: een uitgebreide cardiovasculaire beoordeling bij het eerste onderzoek voor verlenging of hernieuwde afgifte na de leeftijd van 65 en iedere 4 jaar daarna. ***(4)*** Voor een medisch certificaat klasse 1: een bepaling van serumlipiden, waaronder cholesterol, bij het onderzoek voor de eerste afgifte van een medisch certificaat, en bij het eerste onderzoek na het bereiken van de leeftijd van 40. ***(b) Cardiovasculair stelsel - Algemeen*** ***(1)*** Aanvragers mogen niet lijden aan een cardiovasculaire aandoening die de veilige uitoefening van de rechten van de toepasselijke vergunning(en) waarschijnlijk verstoort. ***(2)*** Aanvragers van een medisch certificaat klasse 1 met een van de volgende aandoeningen worden als ongeschikt beoordeeld: ***(i)*** aneurysma van de thoracale of supra-renale abdominale aorta, voor of na operatie; ***(ii)*** significante functionele afwijking van een van de hartkleppen; ***(iii)*** hart- of hart/longtransplantatie.	**Class 1** ***(b)*** *General* ***(1)*** *Cardiovascular risk factor assessment* ***(i)*** Serum lipid estimation is case finding and significant abnormalities should require review, investigation and supervision by the AeMC or AME in conjunction with the licensing authority. ***(ii)*** An accumulation of risk factors (smoking, family history, lipid abnormalities, hypertension, etc.) should require cardiovascular evaluation by the AeMC or AME in consultation with the licensing authority. ***(2)*** *Cardiovascular assessment* ***(i)*** Reporting of resting and exercise electrocardiograms should be by the AME or an accredited specialist. ***(ii)*** The extended cardiovascular assessment should be undertaken at an AeMC or may be delegated to a cardiologist. **Class 2** ***(1)*** *Cardiovascular risk factor assessment* An accumulation of risk factors (smoking, family history, lipid abnormalities, hypertension, etc.) requires cardiovascular evaluation. ***(2)*** *Cardiovascular assessment* Reporting of resting and exercise electrocardiograms should be by the AME or an accredited specialist.	Report specifications - Cardiology **Extended cardiovascular assessment** An extended cardiovascular assessment should include a clinical report of an examination by an accredited physician/cardiologist, an exercise ECG and any other test that is clinically indicated. **Cardiovascular risk assessment** A cardiovascular risk assessment tool useful for AMEs. **Reporting of resting and exercise ECGs** All ECGs should be reported by a cardiologist.
(3) Aanvragers van een medisch certificaat klasse 1 met een vastgestelde geschiedenis of diagnose van een van de volgende aandoeningen	**Class 1** ***(c)*** *Peripheral arterial disease* If there is no significant functional impairment, a fit assessment may be	**Perihpheral Arterial Disease** If exercise electrocardiography cannot be performed (e.g. due to claudication), then a myocardial perfusion scan or

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
worden doorverwezen naar de vergunningverlenende autoriteit: ***(i)*** perifere arteriële vaatziekte voor of na operatie;	considered by the licensing authority, provided: ***(1)*** applicants without symptoms of coronary artery disease have reduced any vascular risk factors to an appropriate level; ***(2)*** all applicants should be on acceptable secondary prevention treatment; ***(3)*** exercise electrocardiography is satisfactory. Further tests may be required which should show no evidence of myocardial ischaemia or significant coronary artery stenosis. **Class 2** ***(c)*** *Peripheral arterial disease* A fit assessment may be considered for an applicant with peripheral arterial disease, or after surgery for peripheral arterial disease, provided there is no significant functional impairment, any vascular risk factors have been reduced to an appropriate level, the applicant is receiving acceptable secondary prevention treatment, and there is no evidence of myocardial ischaemia.	stress echocardiogram may be an acceptable alternative investigation. **Carotid Artery Dissection** Cases should be investigated with Angiography (usually MRI). Specialist review by consultant neurologist is required. Any supratentorial stroke is disqualifying due to seizure risk. Six months following full functional recovery a class 1 OML/unrestricted class 2 assessment may be possible. A further angiogram (usually MRA) is required after 6 months to check whether the dissection has remained stable.
(ii) aneurysma van de abdominale aorta, vóór of na operatie;	**Class 1** ***(d)*** *Aortic aneurysm* ***(1)*** Applicants with an aneurysm of the infra-renal abdominal aorta may be assessed as fit with a multi-pilot limitation by the licensing authority. Follow-up by ultra-sound scans or other imaging techniques, as necessary, should be determined by the licensing authority. ***(2)*** Applicants may be assessed as fit by the licensing authority after surgery for an infra-renal aortic aneurysm with a multi-pilot limitation at revalidation if the blood pressure and cardiovascular assessment are satisfactory. Regular cardiological review should be required. **Class 2** ***(d)*** *Aortic aneurysm* ***(1)*** Applicants with an aneurysm of the thoracic or abdominal aorta may be assessed as fit, subject to satisfactory cardiological evaluation and regular follow-up. ***(2)*** Applicants may be assessed as fit after surgery for a thoracic or abdominal aortic aneurysm subject to satisfactory cardiological evaluation to exclude the presence of coronary artery disease.	**Infrarenal abdominal aortic aneurysm** Class 1: <5 cm — OML 5 cm or more — unfit Class 2: <5 cm — unrestricted 5 - 5,5 cm — OSL >5,5 cm — unfit Flowchart – Aortic root dilatation certification Report specifications - Cardiology
(iii) functioneel niet-significante hartklepafwijkingen;	**Class 1** ***(e)*** *Cardiac valvular abnormalities*	

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
	(1) Applicants with previously unrecognized cardiac murmurs should undergo evaluation by a cardiologist and assessment by the licensing authority. If considered significant, further investigation should include at least 2D Doppler echocardiography or equivalent imaging. ***(2)*** Applicants with minor cardiac valvular abnormalities may be assessed as fit by the licensing authority. Applicants with significant abnormality of any of the heart valves should be assessed as unfit.	Report specifications - Cardiology
	(3) *Aortic valve disease* ***(i)*** Applicants with a bicuspid aortic valve may be assessed as fit if no other cardiac or aortic abnormality is demonstrated. Follow-up with echocardiography, as necessary, should be determined by the licensing authority. ***(ii)*** Applicants with aortic stenosis require licensing authority review. Left ventricular function should be intact. A history of systemic embolism or significant dilatation of the thoracic aorta is disqualifying. Those with a mean pressure gradient of up to 20 mmHg may be assessed as fit. Those with mean pressure gradient above 20 mmHg but not greater than 40 mmHg may be assessed as fit with a multi-pilot limitation. A mean pressure gradient up to 50 mmHg may be acceptable. Follow-up with 2D Doppler echocardiography, as necessary, should be determined by the licensing authority. Alternative measurement techniques with equivalent ranged may be used. ***(iii)*** Applicants with trivial aortic regurgitation may be assessed as fit. A great degree of aortic regurgitation should require a multi-pilot limitation. There should be no demonstrable abnormality of the ascending aorta on 2D Doppler echocardiography. Follow-up, as necessary, should be determined by the licensing authority.	Flowchart – Aortic valve stenosis certification
	(4) *Mitral valve disease* ***(i)*** Asymptomatic applicants with an isolated mid-systolic click due to mitral leaflet prolapse may be assessed as fit. ***(ii)*** Applicants with rheumatic mitral stenosis should normally be assessed as unfit. ***(iii)*** Applicants with uncomplicated minor regurgitation may be assessed as fit. Periodic cardiological review should be determined by the licensing authority.	Flowchart – Mitral valve disease certification Report specifications - Cardiology

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
	(iv) Applicants with uncomplicated moderate mitral regurgitation may be considered as fit with a multi-pilot limitation if the 2D Doppler echocardiogram demonstrates satisfactory left ventricular dimensions and satisfactory myocardial function is confirmed by exercise electrocardiography. Periodic cardiological review should be required, as determined by the licensing authority. ***(v)*** Applicants with evidence of volume overloading of the left ventricle demonstrated by increased left ventricular end-diastolic diameter or evidence of systolic impairment should be assessed as unfit. **Class 2** ***(e)*** *Cardiac valvular abnormalities* ***(1)*** Applicants with previously unrecognized cardiac murmurs require further cardiological evaluation. ***(2)*** Applicants with minor cardiac valvular abnormalities may be assessed as fit.	
(iv) na hartklepoperatie;	**Class 1** ***(f)*** *Valvular surgery* Applicants with cardiac valve replacement/repair should be assessed as unfit. A fit assessment may be considered by the licensing authority. ***(1)*** Aortic valvotomy should be disqualifying. ***(2)*** Mitral leaflet repair for prolapse is compatible with a fit assessment, provided postoperative investigations reveal satisfactory left ventricular function without systolic or diastolic dilation and no more than minor mitral regurgitation. ***(3)*** Asymptomatic applicants with a tissue valve or with a mechanical valve who, at least 6 months following surgery, are taking no cardioactive medication may be considered for a fit assessment with a multi-pilot limitation by the licensing authority. Investigations which demonstrate normal valvular and ventricular configuration and function should have been completed as demonstrated by: ***(i)*** *a* satisfactory symptom limited exercise ECG. Myocardial perfusion imaging/stress echocardiography should be required if the exercise ECG is abnormal or any coronary artery disease has been demonstrated;	Flowchart – Aortic valve replacement certification Report specifications - Cardiology **Mitral Valve Repair** After mitral valve repair, recertification to class 1 OML/Unrestricted class 2 level is possible 6 months post operatively, subject to a satisfactory cardiology review, to include an echocardiogram. Follow-up should include annual echocardiograms.

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
	(ii) a 2D Doppler echocardiogram showing no significant selective chamber enlargement, a tissue valve with minimal structural alteration and a normal Doppler blood flow, and no structural or functional abnormality of the heart valves. Left ventricular fractional shortening should be normal. Follow-up with exercise ECG and 2D echocardiography, as necessary, should be determined by the licensing authority. ***(4)*** Where anticoagulation is needed after valvular surgery, a fit assessment with a multi-pilot limitation may be considered after review by the licensing authority. The review should show that the anticoagulation is stable. Anticoagulation should be considered stable if, within the last 6 months, at least 5 INR values are documented, of which at least 4 are within the INR target range. **Class 2** ***(f)*** *Valvular surgery* ***(1)*** Applicants who have undergone cardiac valve replacement or repair may be assessed as fit if post-operative cardiac function and investigations are satisfactory and no anticoagulants are needed. ***(2)*** Where anticoagulations is needed after valvular surgery, a fit assessment with an OSL or OPL limitation may be considered after cardiological review. The review should show that the anticoagulation is stable. Anticoagulation should be considered stable if, within the last 6 months, at least 5 INR values are documented, of which at least 4 are within the INR target range.	
(v) afwijking van het pericard, myocard of endocard;	**Class 1** ***(h)*** *Other cardiac disorders* ***(1)*** Applicants with a primary or secondary abnormality of the pericardium, myocardium or endocardium should be assessed as unfit. A fit assessment may be considered by the licensing authority following complete resolution and satisfactory cardiological evaluation which may include 2D Doppler echocardiography, exercise ECG and/or myocardial perfusion imaging/stress echocardiography and 24-hour ambulatory ECG. Coronary angiography may be indicated. Frequent review and a multi-pilot limitation may be required after fit assessment.	Flowchart – Hypertrophic cardiomyopathy certification Report specifications - Cardiology **Acute Benign Aseptic Pericarditis** Recertification can be considered 3 months after recovery to class 1 OML/unrestricted class 2 level, subject to a satisfactory cardiology review to include a 24hr ECG, echocardiogram and exercise ECG. Follow-up should initially be 6 monthly cardiology reviews to include a 12 lead resting ECG and echocardiogram. Unrestricted class 1 can be considered after 2 years. Follow-up can usually be discontinued after 2 years.

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
	Class 2 ***(h)*** *Other cardiac disorders* ***(1)*** Applicants with a primary or secondary abnormality of the pericardium, myocardium or endocardium may be assessed as unfit pending satisfactory cardiological evaluation.	**Constrictive Pericarditis** Recertification can be considered after pericardectomy to class 1 OML/unrestricted class 2 level subject to a satisfactory cardiological review, to include exercise ECG, echocardiogram and 24hr ECG. The applicant should be in sinus rhythm. Annual cardiological follow up is required.
(vi) aangeboren afwijking van het hart, voor of na corrigerende operatie;	**Class 1** ***(h)*** *Other cardiac disorders* ***(2)*** Applicants with a congenital abnormality of the heart, including those who have undergone surgical correction, should be assessed as unfit. Applicants with minor abnormalities that are functionally unimportant may be assessed as fit by the licensing authority following cardiological assessment. No cardioactive medication is acceptable. Investigations may include 2D Doppler echocardiography, exercise ECG and 24-hour ambulatory ECG. Regular cardiological review should be required. **Class 2** ***(h)*** *Other cardiac disorders* ***(2)*** Applicants with a congenital abnormality of the heart, including those who have undergone surgical correction, may be assessed as fit subject to satisfactory cardiological assessment. Cardiological follow-up may be necessary and should be determined in consultation with the licensing authority.	
(vii) terugkerende vasovagale syncope;	**Class 1** ***(i)*** *Syncope* ***(1)*** Applicants with a history of recurrent vasovagal syncope should be assessed as unfit. A fit assessment may be considered by the licensing authority after a 6 month period without recurrence provided cardiological evaluation is satisfactory. Such evaluation should include: ***(i)*** a satisfactory symptom limited 12 lead exercise ECG to Bruce Stage IV or equivalent. If the exercise ECG is abnormal, myocardial perfusion imaging/stress echocardiography should be required; ***(ii)*** a 2D Doppler echocardiogram showing neither significant selective chamber enlargement nor structural or functional abnormality of the heart, valves or myocardium; ***(iii)*** a 24-hour ambulatory ECG recording showing no conduction disturbance, complex or sustained	Flowchart – Neuro-cardiogenic syncope certification Report specifications - Cardiology

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
	rhythm disturbance or evidence of myocardial ischaemia. ***(2)*** A tilt test carried out to a standard protocol showing no evidence of vasomotor instability may be required. ***(3)*** Neurological review should be required. ***(4)*** A multi-pilot limitation should be required until a period of 5 years has elapsed without recurrence. The licensing authority may determine a shorter or longer period of multi-pilot limitation according to the individual circumstances of the case. ***(5)*** Applicants who experienced loss of consciousness without significant warning should be assessed as unfit. **Class 2** ***(i)*** *Syncope* Applicants with a history of recurrent vasovagal syncope may be assessed as fit after a 6 month period without recurrence, provided that cardiological evaluation is satisfactory. Neurological review may be indicated.	Flowchart – Neuro-cardiogenic syncope certification Report specifications - Cardiology
(viii) arteriële of veneuze trombose;	**Class 1** ***(g)*** *Thromboembolic Disorders* Arterial or venous thrombosis or pulmonary embolism are disqualifying whilst anticoagulation is being used as treatment. After 6 months of stable anticoagulation as prophylaxis, a fit assessment with multi-pilot limitation may be considered after review by the licensing authority. Anticoagulation should be considered stable if, within the last 6 months, at least 5 INR values are documented, of which at least 4 are within the INR target range. Pulmonary embolus should require full evaluation. Following cessation of anti-coagulant therapy, for any indication, applicants should require review by the licensing authority.	
(ix) longembolie;		
(x) cardiovasculaire aandoening waarvoor systemische antistollingstherapie nodig is.		
(4) Aanvragers van een medisch certificaat klasse 2 met een vastgestelde diagnose van een van de aandoeningen die in punt ***(2)*** en ***(3)***		

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
hierboven worden gespecificeerd, worden beoordeeld door een cardioloog alvorens een beoordeling van geschiktheid kan worden overwogen, in overleg met de autoriteit die het bewijs van bevoegdheid afgeeft.		
(c) Bloeddruk ***(1)*** De bloeddruk wordt bij elk onderzoek opgenomen. ***(2)*** De bloeddruk van de aanvrager moet binnen normale limieten blijven. ***(3)*** Aanvragers van een medisch certificaat klasse 1: ***(i)*** met symptomatische hypotensie; of ***(ii)*** wier bloeddruk bij onderzoek consequent hoger is dan 160mmHg systolisch en of 95mmHg diastolisch, met of zonder behandeling; worden als ongeschikt beoordeeld. ***(4)*** Het instellen van medicatie voor bloeddrukbeheersing maakt een tijdelijke opschorting van het medisch certificaat noodzakelijk om de afwezigheid van significante bijwerkingen te kunnen vaststellen.	**Class 1** ***(j)*** *Blood Pressure* ***(1)*** The diagnosis of hypertension should require cardiovascular review to include potential vascular risk factors. ***(2)*** Anti-hypertensive treatment should be agreed by the licensing authority. Acceptable medication may include: ***(i)*** non-loop diuretic agents; ***(ii)*** ACE Inhibitors; ***(iii)*** angiotensin II AT1 blocking agents (sartans); ***(iv)*** slow channel calcium blocking agents; ***(v)*** certain (generally hydrophilic) beta-blocking agents. ***(3)*** Following initiation of medication for the control of blood pressure, applicants should be reassessed to verify that the treatment is compitable with the safe exercise of the privileges of the licence held. **Class 2** ***(j)*** *Blood Pressure* ***(1)*** When the blood pressure at examination consistently exceeds 160 mmHg systolic and/or 95 mmHg diastolic, with or without treatment, the applicant should be assessed as unfit. ***(2)*** The diagnosis of hypertension requires review of other potential vascular risk factors. ***(3)*** Applicants with symptomatic hypotension should be assessed as unfit. ***(4)*** Anti-hypertensive treatment should be compatible with flight safety. ***(5)*** Following initiation of medication for the control of blood pressure, applicants should be re-assessed to verify that the treatment is compatible with the safe exercise of the privileges of the licence held.	Report specifications – Hypertension Flowchart – Hypertension certification
(d) Coronaire hartziekte ***(1)*** Aanvragers van een medisch certificaat klasse 1 met: ***(i)*** vermoedelijke myocardischemie; ***(ii)*** asymptomatisch secundaire coronaire hartziekte waarvoor geen	**Class 1** ***(k)*** *Coronary Artery Disease* ***(1)*** Chest pain of uncertain cause should require full investigation.	Flowchart – Investigation of suspected coronary artery disease certification Report specifications - Cardiology

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
anti-anginabehandeling nodig is; worden verwezen naar de autoriteit die het bewijs van bevoegdheid afgeeft en ondergaan een cardiologische evaluatie ondergaan om myocardischemie uit te sluiten alvorens een beoordeling van geschiktheid kan worden overwogen. ***(2)*** Aanvragers van een medisch certificaat klasse 2 met een van de aandoeningen die in punt ***(1)*** worden beschreven, ondergaan een cardiologische evaluatie alvorens een beoordeling van geschiktheid kan worden overwogen. ***(3)*** Aanvragers met een van de volgende aandoeningen worden als ongeschikt beoordeeld: ***(i)*** myocardischemie; ***(ii)*** symptomatische coronaire hartziekte; ***(iii)*** symptomen van coronaire hartziekte die door medicatie onder controle zijn.	***(2)*** In suspected asymptomatic coronary artery disease, exercise electrocardiography should be required. Further tests may be required, which should show no evidence of myocardial ischaemia or significant coronary artery stenosis. **Class 2** ***(k)*** *Coronary Artery Disease* ***(1)*** Chest pain of uncertain cause should require full investigation. ***(2)*** In suspected asymptomatic coronary artery disease cardiological evaluation should show no evidence of myocardial ischaemia or significant coronary artery stenosis.	
(4) Aanvragers van de eerste afgifte van een medisch certificaat klasse 1 met een geschiedenis of diagnose van een van de volgende aandoeningen worden als ongeschikt beoordeeld: ***(i)*** myocardischemie; ***(ii)*** myocardinfarct; ***(iii)*** revascularisatie voor coronaire hartziekte.	**Class 1** ***(k)*** *Coronary Artery Disease* ***(3)*** Evidence of exercise-induced myocardial ischaemia should be disqualifying. ***(4)*** After an ischaemic cardiac event, including revascularization, applicants without symptoms should have reduced any vascular risk factors to an appropriate level. Medication, when used to control cardiac symptoms, is not acceptable. All applicants should be on acceptable secondary prevention treatment. ***(i)*** A coronary angiogram obtained around the time of, or during, the ischaemic myocardial event and a complete, detailed clinical report of the ischaemic event and of any operative procedures should be available to the licensing authority: ***(A)*** there should be no stenosis more than 50% in any major untreated vessel, in any vein or artery graft or at the site of an angioplasty/stent, except in a vessel subtending a myocardial infarction. More than two stenoses between 30% and 50% within the vascular tree should not be acceptable; ***(B)*** the whole coronary vascular tree should not be assessed as satisfactory by a cardiologist, and particular attention should be paid to multiple stenoses and/or multiple revascularisations; ***(C)*** an untreated stenosis greater than 30% in the left main or proximal left anterior descending	Flowchart – Coronary artery disease certification Report specifications - Cardiology

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
	coronary artery should not be acceptable. ***(ii)*** At least 6 months from the ischaemic myocardial event, including revascularization, the following investigations should be completed (equivalent tests may be substituted): ***(A)*** an exercise ECG showing neither evidence of myocardial ischaemia nor rhythm or conduction disturbance; ***(B)*** an echocardiogram showing satisfactory left ventricular function with no important abnormality of wall motion (such as dyskinesia or akinesia) and a left ventricular ejection fraction of 50% or more; ***(C)*** in cases of angioplasty/stenting, a myocardial perfusion scan or stress echocardiogram, which should show no evidence of reversible myocardial ischaemia. If there is any doubt about myocardial perfusion in other cases (infarction or bypass grafting) a perfusion scan should also be required; ***(D)*** further investigations, such as a 24-hour ECG, may be necessary to assess the risk of any significant rhythm disturbance. ***(iii)*** Follow-up should be annually (or more frequently, if necessary) to ensure that there is no deterioration of the cardiovascular status. It should include a review by a cardiologist, exercise ECG and cardiovascular risk assessment. Additional investigations may be required by the licensing authority. ***(A)*** After coronary artery vein bypass grafting, a myocardial perfusion scan or equivalent test should be performed if there is any indication, and in all cases within 5 years from the procedure. ***(B)*** In all cases, coronary angiography should be considered at any time if symptoms, signs or non-invasive tests indicate myocardial ischaemia. ***(iv)*** Successful completion of the 6-month or subsequent review will allow a fit assessment with a multi-pilot limitation.	
(5) Aanvragers van een medisch certificaat klasse 2 die asymptomatisch zijn na myocardinfarct of operatie voor coronaire hartziekte dienen een bevredigende cardiologische evaluatie te ondergaan alvorens in overleg met de vergunningverlenende autoriteit een	**Class 2** ***(k)*** *Coronary Artery Disease* ***(3)*** After an ischaemic cardiac event, or revascularization, applicants without symptoms should have reduced any vascular risk factors to an appropriate level. Medication, when used to control	Flowchart – Coronary artery disease certification Report specifications - Cardiology

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
beoordeling van geschiktheid kan worden overwogen. Aanvragers van de verlenging van een medisch certificaat klasse 1 worden doorverwezen naar de vergunningverlenende autoriteit.	angina pectoris, is not acceptable. All applicants should be on acceptable secondary prevention treatment. ***(i)*** A coronary angiogram obtained around the time of, or during, the ischaemic myocardial event and a complete, detailed clinical report of the ischaemic event and of any operative procedures should be available to the AME: ***(A)*** there should be no stenosis more than 50% in any major untreated vessel, in any vein or artery graft or at the site of an angioplasty/stent, except in a vessel subtending a myocardial infarction. More than two stenoses between 30% and 50% within the vascular tree should not be acceptable. ***(B)*** the whole coronary vascular tree should not be assessed as satisfactory and particular attention should be paid to multiple stenoses and/or multiple revascularisations. ***(C)*** An untreated stenosis greater than 30% in the left main or proximal left anterior descending coronary artery should not be acceptable. ***(ii)*** At least 6 months from the ischaemic myocardial event, including revascularization, the following investigations should be completed (equivalent tests may be substituted): ***(A)*** an exercise ECG showing neither evidence of myocardial ischaemia nor rhythm disturbance; ***(B)*** an echocardiogram showing satisfactory left ventricular function with no important abnormality of wall motion and a satisfactory left ventricular ejection fraction of 50% or more; ***(C)*** in cases of angioplasty/stenting, a myocardial perfusion scan or stress echocardiogram which should show no evidence of reversible myocardial ischaemia. If there is any doubt about revascularization in myocardial infarction or bypass grafting, a perfusion scan should also be required; ***(D)*** further investigations, such as a 24-hour ECG, may be necessary to assess the risk of any significant rhythm disturbance. ***(iii)*** Periodic follow-up should include cardiological review. ***(A)*** After coronary artery bypass grafting, a myocardial perfusion scan (or satisfactory equivalent test) should be performed if there is any indication, and in all cases within 5 years from the procedure for a fit assessment without a safety pilot limitation.	

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
	(B) In all cases, coronary angiography should be considered at any time if symptoms, signs or non-invasive tests indicate myocardial ischaemia. ***(iv)*** Successful completion of the 6-month or subsequent review will allow a fit assessment. Applicants may be assess as fit with a safety pilot limitation having successfully completed only an exercise ECG. ***(4)*** Angina pectoris is disqualifying, whether or not it is abolished by medication.	
(e) Ritme-/geleidingsstoornissen ***(1)*** Aanvragers van een medisch certificaat klasse 1 worden doorverwezen naar de vergunningverlenende autoriteit wanneer ze een significante hartgeleidings- of hartritmestoornis hebben, waaronder een van de volgende aandoeningen:	**Class 1** ***(l)*** *Rhythm and Conduction Disturbances* ***(1)*** Any significant rhythm or conduction disturbance should require evaluation by a cardiologist and appropriate follow-up in the case of a fit assessment. Such evaluation should include: ***(i)*** exercise ECG to the Bruce protocol or equivalent. Bruce stage 4 should be achieved and no significant abnormality of rhythm or conduction, or evidence of myocardial ischaemia should be demonstrated. Withdrawal of cardioactive medication prior to the test should normally be required. ***(ii)*** 24-hour ambulatory ECG which should demonstrate no significant rhythm or conduction disturbance; ***(iii)*** 2D Doppler echocardiogram which should show no significant selective chamber enlargement or significant structural or functional abnormality, and a left ventricular ejection fraction of at least 50%. Further evaluation may include (equivalent tests may be substituted): ***(iv)*** 24-hour ECG recording repeated as necessary; ***(v)*** electrophysiological study; ***(vi)*** myocardial perfusion imaging; ***(vii)*** cardiac magnetic resonance imaging (MRI); ***(viii)*** coronary angiogram. **Class 2** Any significant rhythm or conduction disturbance should require cardiological evaluation and an appropriate follow-up in the case of a fit assessment. An OSL or OPL limitation should be considered as appropriate.	Table - Investigation of ECG abnormalities **Short PR interval** Defined as a PR interval of less than 100ms. Class 1 initial applicant, or new finding on ECG, requires cardiological review (to establish no history of tachyarrhythmia) and exercise test. **Long PR Interval** Defined as a PR interval of more than 240ms. Class 1 initial applicant, or new finding on ECG, requires cardiological review, exercise test and 24 hour ECG.
(i) supraventriculaire ritmestoornis, waaronder intermitterende of vastgestelde sinoatriële disfunctie,	**Class 1** ***(2)*** Applicants with frequent or complex forms of supra ventricular or	Flowchart – Ventricular ectopy certification

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
atriumfibrillatie en/of flutter en asymptomatische sinuspauzes;	ventricular ectopic complexes require full cardiological evaluation. ***(4)*** *Supraventricular Arrhythmias* Applicants with significant disturbance of supraventricular rhythm, including sinoatrial dysfunction, whether intermittent or established, should be assessed as unfit. A fit assessment maybe considered by the licensing authority if cardiological evaluation is satisfactory. ***(i)*** *Atrial fibrillation/flutter* ***(A)*** For initial applicants, a fit assessment should be limited to those with a single episode of arrhythmia which is considered by the licensing authority to be unlikely to recur. ***(B)*** For revalidation, applicants may be assessed as fit if cardiological evaluation is satisfactory. ***(ii)*** Applicants with asymptomatic sinus pauses up to 2.5 seconds on resting electrocardiography may be assessed as fit if exercise electrocardiography, echocardiography and 24 hour ambulatory ECG are satisfactory. ***(iii)*** Symptomatic sino-atrial disease should be disqualifying. **Class 2** ***(2)*** *Supraventricular Arrhythmias* ***(i)*** Applicants with significant disturbance of supraventricular rhythm, including sinoatrial dysfunction, whether intermittent or established, may be assessed as fit if cardiological evaluation is satisfactory. ***(ii)*** Applicants with atrial fibrillation/flutter may be assessed as fit if cardiological evaluation is satisfactory. ***(iii)*** Applicants with asymptomatic sinus pauses up to 2,5 seconds on resting electrocardiography may be assessed as fit if cardiological evaluation is satisfactory.	Flowchart – Atrial fibrillation certification
(ii) complete linkerbundeltakblok;	**Class 1** ***(7)*** *Complete left bundle branch block* A fit assessment may be considered by the licensing authority. ***(i)*** Initial applicants should demonstrate a 3-year period of stability. ***(ii)*** For revalidation, after a 3-year period with a multi-pilot limitation applied, a fit assessment without multi-pilot limitation may be considered. ***(iii)*** Investigation of the coronary arteries is necessary for applicants over age 40. **Class 2**	Flowchart – Left bundle branch block (LBBB) certification

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
	(5) *Complete left bundle branch block* Applicants with complete left bundle branch block may be assessed as fit subject to satisfactory cardiological assessment.	
(iii) Mobitz type 2 atrioventriculair blok;	**Class 1** ***(5)*** *Mobitz type 2 atrio-ventricular block* Applicants with Mobitz type 2 AV block should require full cardiological evaluation and may be assessed as fit in the absence of distal conducting tissue disease. **Class 2** ***(3)*** *Heart Block* ***(i)*** Applicants with first degree and Mobitz type 1 A-V block may be assessed as fit. ***(ii)*** Applicants with Mobitz type 2 AV block may be assessed as fit in the absence of distal conducting tissue disease.	
(iv) tachycardie met brede en/of smalle complexen;		
(v) ventriculaire pre-excitatie;	**Class 1** ***(8)*** *Ventricular pre-excitation* A fit assessment may be considered by the licensing authority. ***(i)*** Asymptomatic initial applicants with pre-excitation may be assessed as fit by the licensing authority if an electrophysiological study, including adequate drug-induced autonomic stimulation reveals no inducible re-entry tachycardia and the existence of multiple pathways is excluded. ***(ii)*** Asymptomatic applicants with pre-excitation may be assessed as fit by the licensing authority at revalidation with a multi-pilot limitation. **Class 2** ***(6)*** *Ventricular pre-excitation* Asymptomatic applicants with ventricular pre-excitation may be assessed as fit subject to satisfactory cardiological evaluation.	Flowchart – Wolff-Parkinson-White (WPW) pre-excitation certification
(vi) asymptomatische QT-verlenging;	**Class 1** **(10)** *QT Prolongation* Prolongation of the QT interval on the ECG associated with symptoms should be disqualifying. Asymptomatic applicants require cardiological evaluation for a fit assessment and a multi-pilot limitation may be required.	

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
(vii) Brugada-patroon op ecg.		Flowchart – Brugada certification
(2) Aanvragers van een medisch certificaat klasse 2 met een van de aandoeningen die in punt ***(1)*** worden beschreven, ondergaan een bevredigende cardiologische evaluatie alvorens in overleg met de vergunningverlenende autoriteit een beoordeling van geschiktheid kan worden overwogen.		
(3) Aanvragers met een van de volgende aandoeningen:		
(i) incompleet bundeltakblok; ***(ii)*** compleet rechterbundeltakblok;	**Class 1** ***(6)*** *Complete right bundle branch block* Applicants with complete right bundle branch block should require cardiological evaluation on first presentation and subsequently: ***(i)*** for initial applicants under 40 years of age, a fit assessment may be considered by the licensing authority. Initial applicants over 40 years should demonstrate a period of stability of 12 months; ***(ii)*** for revalidation, a fit assessment may be considered if the applicant is under 40 years. A multi-pilot limitation should be applied for 12 months for those over 40 years of age. **Class 2** ***(4)*** *Complete right bundle branch block* Applicants with complete right bundle branch block may be assessed as fit subject to satisfactory cardiological evaluation.	Flowchart – Complete Right bundle branch block (RBBB) certification
(iii) stabiel linker asafwijking;		**Left anterior hemi block** Requires investigation by means of at least an exercise ECG. If left anterior hemi block (or left posterior hemi block) is noted in the presence of RBBB, the LBBB flowchart should be followed.
(iv) asymptomatische sinusbradycardie;		**Sinus bradycardia** Requires investigation if the rate is <40bpm (usually by means of a 24 hour ECG).
(v) asymptomatische sinustachycardie;		**Sinus tachycardia** Requires investigation if the rate is consistently >110bpm.

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
(vi) asymptomatische geïsoleerde uniforme supraventriculaire of ventriculaire ectopische complexen; ***(vii)*** eerstegraads atrioventriculaire blok; ***(viii)*** Mobitz type 1 atrioventriculaire blok;		
kunnen na een bevredigende cardiologische evaluatie als geschikt worden beoordeeld indien er geen andere afwijkingen zijn.		
(4) Aanvragers met een geschiedenis van:		
(i) ablatietherapie;	**Class 1** ***(3)*** *Ablation* Applicants who have undergone ablation therapy should be assessed as unfit. A fit assessment may be considered by the licensing authority following successful catheter ablation and should require a multi-pilot limitation for at least one year, unless an electrophysiological study, undertaken at a minimum of two months after the ablation, demonstrates satisfactory results. For those in whom the long term outcome cannot be assured by invasive or non-invasive testing, an additional period with a multi-pilot limitation and/or observation may be necessary. **Class 2** ***(1)*** *Ablation* A fit assessment may be considered following successful catheter ablation subject to satisfactory cardiological review undertaken at a minimum of two months after the ablation.	Flowchart – Catheter ablation for tachycardia certification (except WPW and AVNRT) Flowchart – Catheter ablation for WPW syndrome and AVNRT certification
(ii) pacemakerimplantatie;	**Class 1** ***(9)*** *Pacemaker* Applicants with a subendocardial pacemaker should be assessed as unfit. A fit assessment may be considered at revalidation by the licensing authority no sooner than three months after insertion and should require: ***(i)*** no other disqualifying condition; ***(ii)*** a bipolar lead system, programmed in bipolar mode without automatic mode change of the device; ***(iii)*** that the applicant is not pacemaker dependent; ***(iv)*** regular follow-up, including a pacemaker check; and ***(v)*** a multi-pilot limitation.	Flowchart – Implantation of a cardiac pacemaker certification

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
	Class 2 ***(7)*** *Pacemaker* Applicants with a subendocardial pacemaker may be assessed as fit no sooner than three months after insertion provided: ***(i)*** there is no other disqualifying condition; ***(ii)*** a bipolar lead system is used, programmed in bipolar mode without automatic mode change of the device; ***(iii)*** the applicant is not pacemaker dependent; and ***(iv)*** the applicant has a regular follow-up including a pacemaker check.	
dienen een bevredigende cardiovasculaire evaluatie te ondergaan alvorens een beoordeling van geschiktheid kan worden overwogen. Aanvragers van een medisch certificaat klasse 1 worden doorverwezen naar de autoriteit die het bewijs van bevoegdheid afgeeft. Aanvragers van een medisch certificaat klasse 2 worden beoordeeld in overleg met de autoriteit die het bewijs van bevoegdheid afgeeft.		
(5) Aanvragers met een van de volgende aandoeningen worden als ongeschikt beoordeeld: ***(i)*** symptomatische sinoatriale ziekte; ***(ii)*** compleet atrioventriculair blok; ***(iii)*** symptomatische QT-verlenging; ***(iv)*** een automatisch implanteerbaar defibrillatiesysteem; ***(v)*** een ventriculaire anti-tachycardiepacemaker.		

Table – Investigation of ECG abnormalities

1: Cardiologist review
2: Exercise ECG
3: 24hr Holter
4: Echocardiogram

Diagnosis	Class 1		Flow charts and guidance material available (Class 1/2)	Class 2	
	Fitness assessment	Minimum investigations, others if clinically indicated		Fitness assessment*	Minimum investigations, others if clinically indicated
Rhythm					
Incomplete RBBB	AME	Investigate if other abnormalities are present	No	AME	Investigate if other abnormalities are present
Atrial fibrillation atrial flutter		1, 2, 3, 4	Yes		1, 2, 3, 4
Sinoatrial dysfunction or sinus pauses			No		
Mobitz type 2 AV block			No		
Complete RBBB			Yes		
Complete LBBB (or RBBB+left axis deviation)			Yes		
Broad/narrow complex tachycardia			No		
Pacemakers			Yes		
Mobitz type 1 AV block		1, 3	No		1, 3
SVEs/VEs simple		1, 3 Then possibly 2, 4	Yes		
SVEs/VEs complex		1, 2, 3, 4			1, 2, 3, 4
WPW			Yes		
Other inc AVNRT etc			Yes		
Asymptomatic QT prolongation			No		
Brugada pattern			Yes		
Post ablation			Yes		
Coronary disease					
Pathological Q waves T inversion Q waves Poor R wave progression	MA	1, 2, 3, 4	Yes	AME	1, 2, 3, 4
Cardiomyopathy					
LVH, atrial enlargement, flat or inverted T waves	MA	1, 2, 3, 4	No	AME	1, 2, 3, 4
Miscellaneous – new finding of…					
Non-specific T wave changes	MA	1, 2	No	AME	1, 2
New or progressive left axis deviation					
ST segment sag					
ST segment depression					
First degree AV block (>240 ms)		1, 3			1, 3
Bradycardia (rate <40 bpm)					
Tachycardia (rate >100 bpm)					
Asymptomatic long QT		1, 2, 3	Yes		1, 2

* where there is guidance material and/or certificatory flow charts and assessment is straightforward, AMEs should make the fitness decision. For complex and/or borderline cases the AME should discuss the case with a cardiologist.

MA = Medical Assessor

Report specifications - Cardiology

The following subheadings are for guidance purposes only and should not be taken as an exhaustive list.

1. **Diagnoses**

2. **History**
   - Presenting symptoms
   - Nature of condition, circumstances surrounding onset, precipitating factors
   - Other relevant medical history

3. **Examination and investigation findings**
   - Clinical examination
     - Blood Pressure within acceptable parameters (Flowchart – Hypertension certification)
     - Blood tests (Urea & Electrolytes, Renal and Liver Profile, Lipid Profile, Glucose)
     - Confirmation no end organ damage
   - Cardiovascular risk assessment
     - Family history, smoking, alcohol intake, weight (BMI), and lifestyle interventions
     - Resting ECG
     - Exercise Tolerance Test Report where indicated
       1. Protocol used (e.g. Symptom limited Bruce Protocol off cardioactive medication as directed by the investigating cardiologist)
       2. Walking time
       3. Symptoms experienced
       4. ECG changes
       5. Summary and conclusions
     - Echocardiogram where indicated
       1. Valve structure and function
       2. Standard chamber dimensions
       3. Ejection Fraction (indicate measurement technique)
       4. Summary and conclusions
     - 24-hour ECG where indicated
       1. Beats scanned
       2. Number/frequency of ectopics/aberrants
       3. Runs of abnormal rhythm (extracts)
       4. Summary and conclusion
     - Angiogram where indicated
       1. Full report
       2. Measurement of degree of stenosis in each affected artery (annotated diagram of coronary tree acceptable)
     - Cardiac MRI, Myocardial Perfusion Scan, Stress Echocardiogram (dobutamine or exercise), CT as indicated

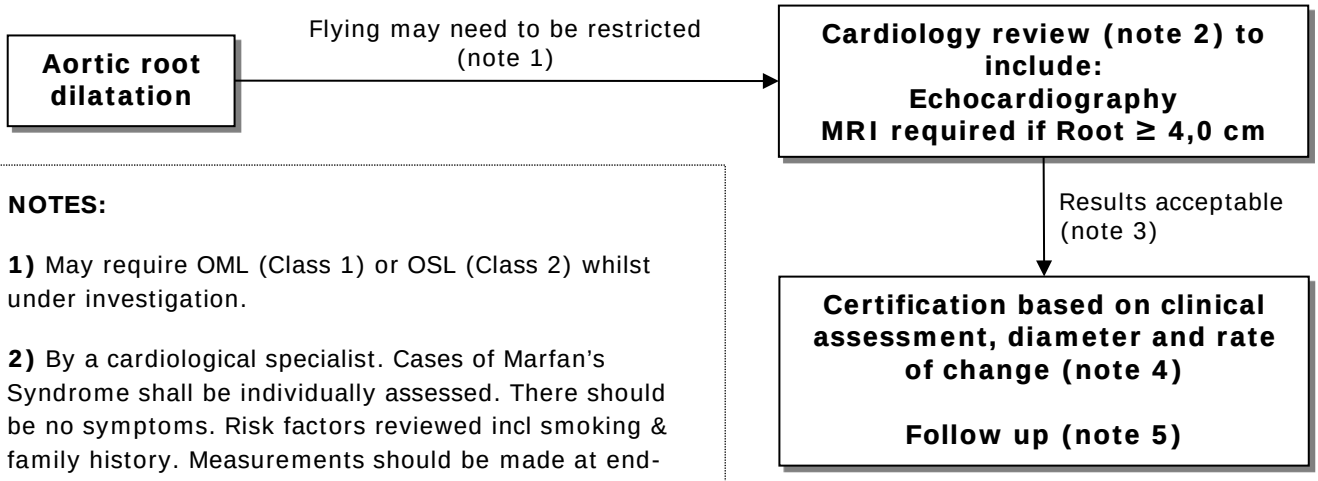
Where investigations are abnormal or borderline the hard copy traces/images are likely to be required for review.

4. **Treatment**
   - Current and recent past medication (dose, frequency, start date and finish date)
   - Confirmation no side effects from medication

5. **Follow up and further investigations/referrals planned or recommended**
   - Plan of management and anticipated follow up

6. **Clinical implications**
   - Any concerns regarding disease progression, treatment compliance or risk of sudden incapacity

Flowchart – Aortic root dilatation certification



NOTES:

1) May require OML (Class 1) or OSL (Class 2) whilst under investigation.

2) By a cardiological specialist. Cases of Marfan's Syndrome shall be individually assessed. There should be no symptoms. Risk factors reviewed incl smoking & family history. Measurements should be made at end-diastole of:

1. outflow tract diameter,
2. sinuses of Valsalva,
3. sinotubular junction and
4. tubular ascending aorta.

The largest measurement should be utilised. CT is an acceptable alternative to MRI but repeated studies increases radiation exposure.

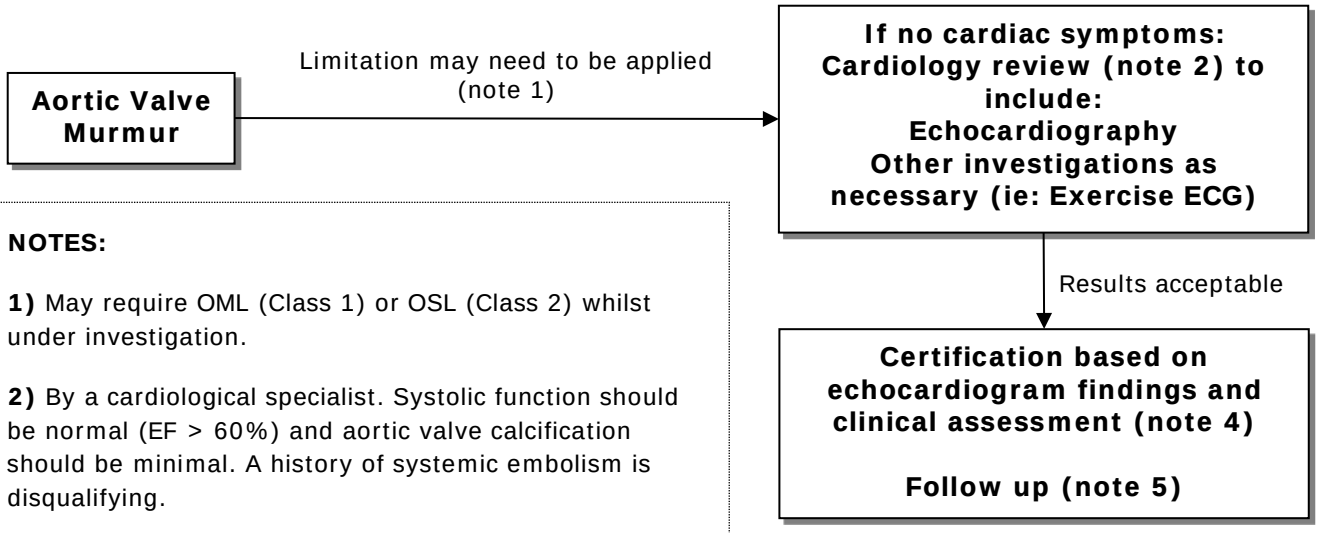
3) The cardiology report will be reviewed by the Medical Assessor for class 1 and AME for class 2. Applicants with Marfans will need special consideration. It may be necessary to see the investigations in which case the actual tracings/films/videos will be requested. In borderline cases a secondary review panel of cardiologists will be convened. An OSL may be applied to a class 2 certificate.

4) The principal measurement to determine medical certification of pilots with aortic root dilatation is MRI. Indexing root area to Body Surface Area (BSA) standardises for large or small BSA. BSA indexed diameter (BSAID) = measured value x 1,73 ÷ BSA (m^2). The following parameters to be used as a guide:

	Bicuspid		**Tricuspid**	
	BSAID	Rate of change	BSAID	Rate of change
Unrestricted class 1 & 2	<4,25 cm	<0,5 cm/yr	<4,5 cm	<0,5 cm/yr
Class 1 OML / class 2 Unrestricted	<4,5 cm	<1 cm/yr	<4,75 cm	<1 cm/yr
Unfit	≥4,5 cm	≥1 cm/yr	≥5,0 cm	≥1 cm/yr

5) Follow up - at least annual echocardiography. MRI (or CT) is required at least 2 yearly where diameter > 4,25 cm or rate of change > 0,5 cm/yr.

Flowchart – Aortic valve stenosis certification



NOTES:

1) May require OML (Class 1) or OSL (Class 2) whilst under investigation.

2) By a cardiological specialist. Systolic function should be normal (EF > 60%) and aortic valve calcification should be minimal. A history of systemic embolism is disqualifying.

3) The cardiology report will be reviewed by the Medical Assessor for class 1 and by the AME for class 2. It may be necessary to see the investigations in which case the actual tracings/films/videos will be requested. In difficult cases a secondary review panel of cardiologists will be convened.

4) Bicuspid valve: may be assessed as fit if no other aortic abnormality is demonstrated. The principal measurement to determine fitness for certification of pilots with aortic stenosis is aortic valve area during echocardiography. Suggested certificatory assessment, based on European Society of Cardiology Guidelines:

VALVE AREA	MEAN AORTIC GRADIENT (Echo-Normal flow conditions)	SEVERITY	CERTIFICATION
>1,5 cm²	0 – 20 mm Hg	Mild	Unrestricted class 1/2
1,0 – 1,5 cm²	20 – 40 mm Hg	Moderate	Class 1 OML / Unrestricted class 2
<1,0 cm²	>40 mm Hg	Severe	Unfit*

Indexing valve area to Body Surface Area (BSA) can be useful in cases of unusually large or small BSA (Moderate: 0,6 – 0,85 cm²/m²; Severe: <0,6 cm²/m²).

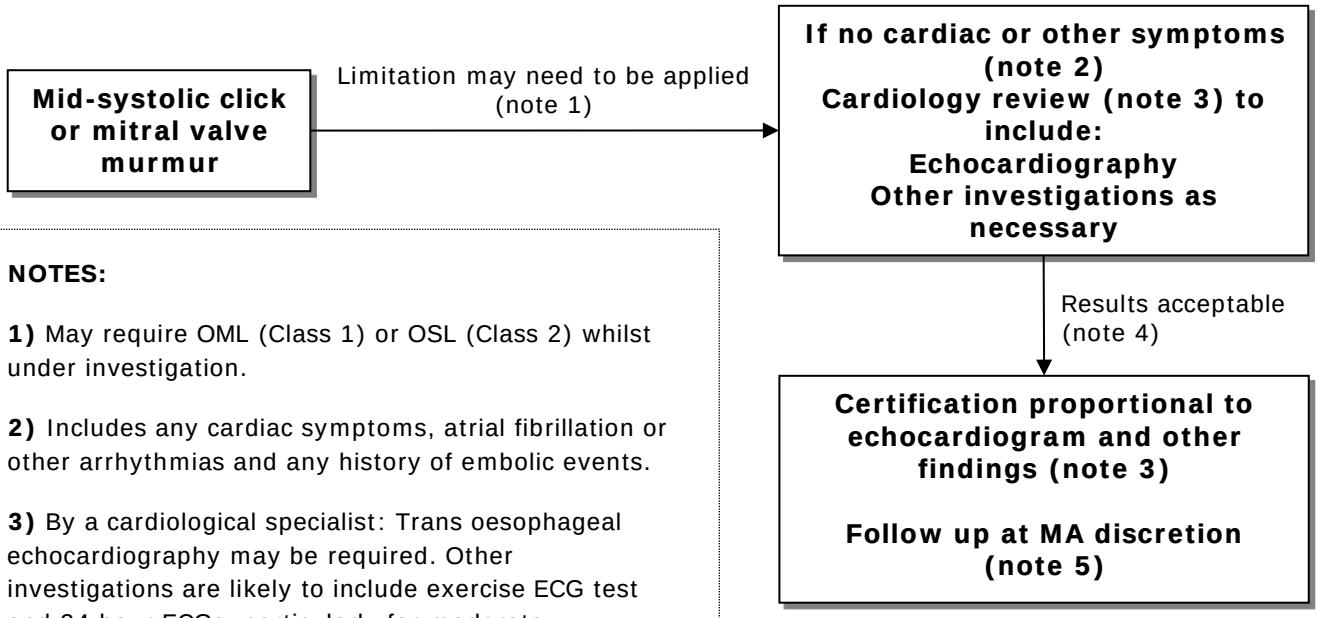
However, other factors need to be considered in each case, including:

- Left ventricular hypertrophy
- Reduced left ventricular diastolic function
- Reduced left ventricular ejection fraction
- Aortic regurgitation
- Pull back pressure gradients measured during catheter studies are 10-15 mm Hg lower than echocardiographically measured peak pressures

* Cases with a mean gradient of 40 – 50 mmHg and favourable other factors may be considered for class 2 OSL.

5) Follow up: at least annual echocardiography if mean pressure gradient 20 mm Hg or more.

Flowchart – Mitral valve disease certification



NOTES:

1) May require OML (Class 1) or OSL (Class 2) whilst under investigation.

2) Includes any cardiac symptoms, atrial fibrillation or other arrhythmias and any history of embolic events.

3) By a cardiological specialist: Trans oesophageal echocardiography may be required. Other investigations are likely to include exercise ECG test and 24 hour ECGs, particularly for moderate regurgitation.

4) The cardiology report will be reviewed by the Medical Assessor for class 1 and by the AME for class 2. It may be necessary to see the investigations in which case the actual tracings/films/videos will be requested. In difficult cases a secondary review panel of cardiologists will be convened. Certification criteria based on echocardiographic and other findings:

Rheumatic mitral stenosis should normally be assessed unfit.

Minor regurgitation or Mitral valve prolapse only: Unrestricted class 1/2

- Requires evidence of no thickened leaflets or flail chordate and left atrial internal diameter less than or equal to 4,0 cm.

Moderate regurgitation: class 1 OML / Unrestricted class 2 (possible OSL)

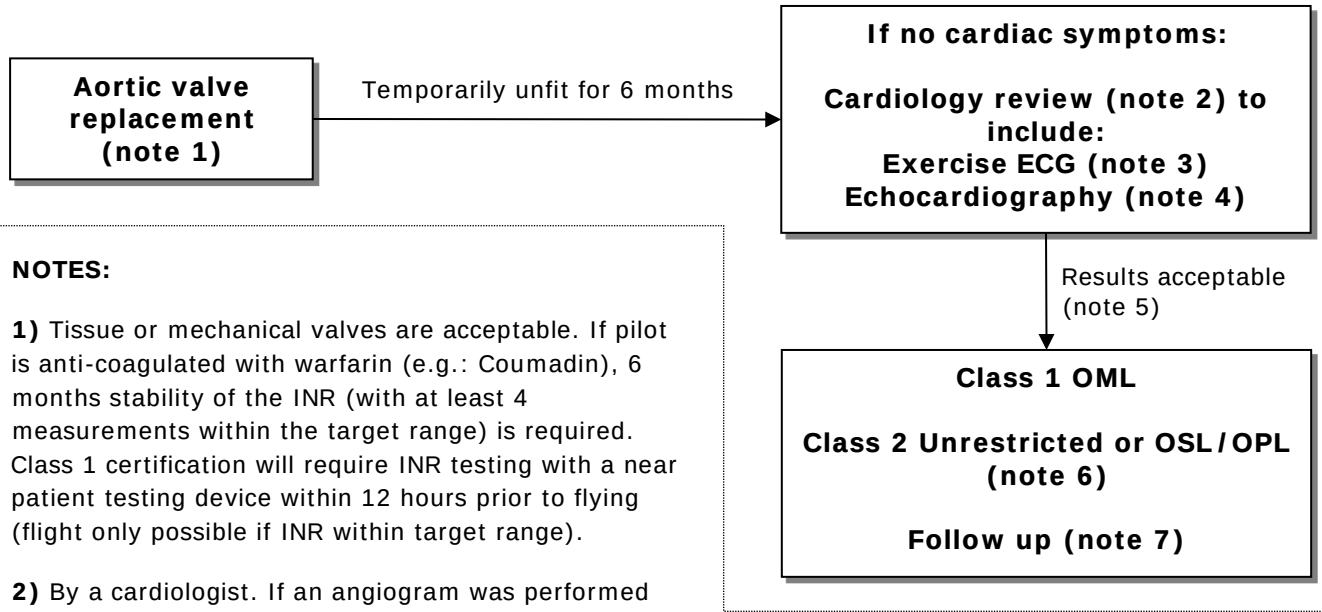
Severe regurgitation: No certification possible.

- The following may indicate severe regurgitation:
  - LV internal diameter (diastole) >6,0 cm
  - LV internal diameter (systole) >4,1 cm
  - Left atrial internal diameter >4,5 cm

Doppler indices such as width of jet, backwards extension and whether there is flow reversal in the pulmonary veins may be helpful in assessing severity of regurgitation.

5) Follow up: periodic echocardiography (annual or bi-annual) will be required.

Flowchart – Aortic valve replacement certification



NOTES:

1) Tissue or mechanical valves are acceptable. If pilot is anti-coagulated with warfarin (e.g.: Coumadin), 6 months stability of the INR (with at least 4 measurements within the target range) is required. Class 1 certification will require INR testing with a near patient testing device within 12 hours prior to flying (flight only possible if INR within target range).

2) By a cardiologist. If an angiogram was performed pre-operatively, for class 1 applicants, the hard copy will need to be reviewed by the Medical Assessor.

3) Exercise ECG - Bruce protocol and symptom limited. Requirements are at least 9 minutes and no significant ECG or abnormal blood pressure changes. Any abnormality may require further investigation such as myocardial perfusion scanning. If coronary artery surgery was performed at the same time as the valve replacement, the appropriate post-CABG protocol will need to be completed as well.

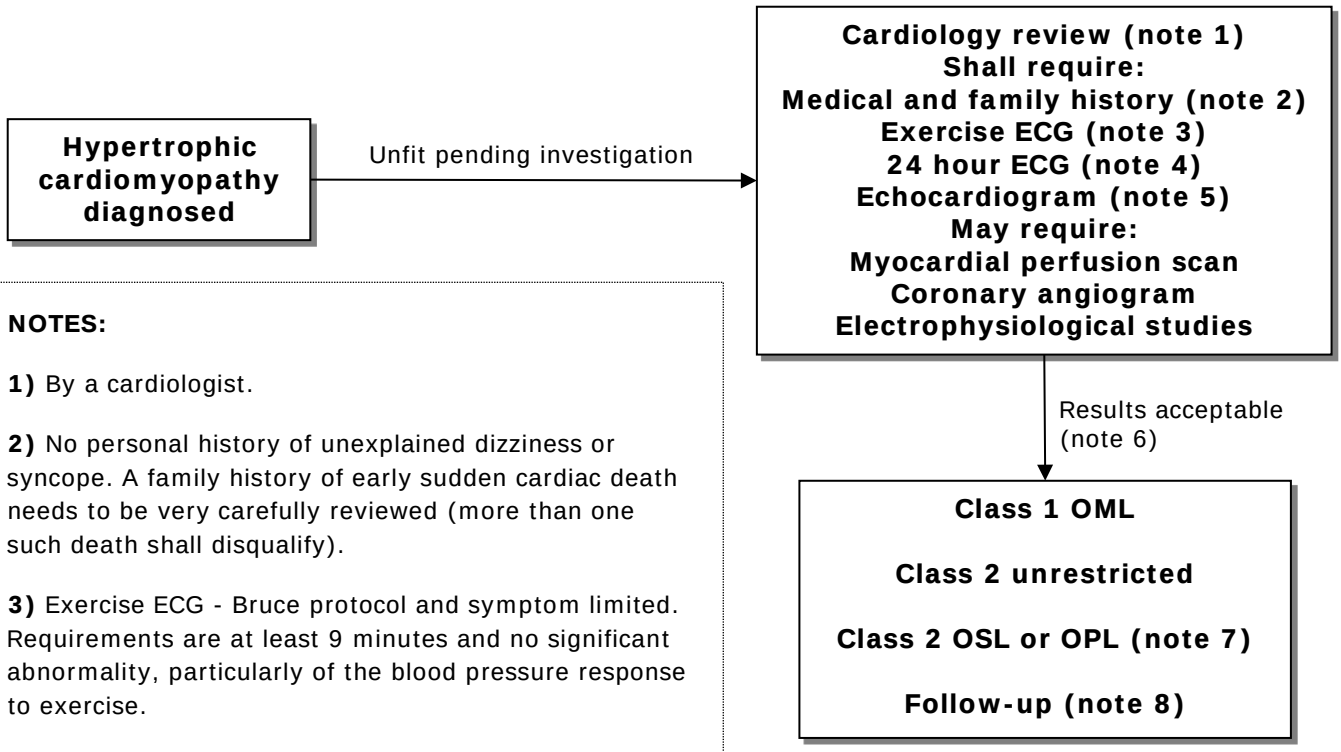
4) Echocardiogram – The valve replacement should be functioning normally. Left ventricular size and function should be normal (≥50%).

5) The cardiology report will be reviewed by the Medical Assessor for class 1 and by the AME for class 2. It may be necessary to see the investigations in which case the actual tracings/films/videos will be requested.

6) If the above requirements cannot be met, class 2 restricted (OSL or OPL) recertification may be appropriate.

7) Annual cardiological review including echocardiography. Reports should include demonstrated stability of anticoagulant therapy where taken.

Flowchart – Hypertrophic cardiomyopathy certification



NOTES:

1) By a cardiologist.

2) No personal history of unexplained dizziness or syncope. A family history of early sudden cardiac death needs to be very carefully reviewed (more than one such death shall disqualify).

3) Exercise ECG - Bruce protocol and symptom limited. Requirements are at least 9 minutes and no significant abnormality, particularly of the blood pressure response to exercise.

4) 24 Hour ECG - No significant rhythm/conduction disturbance. A non-sustained/sustained ventricular rhythm disturbance shall disqualify.

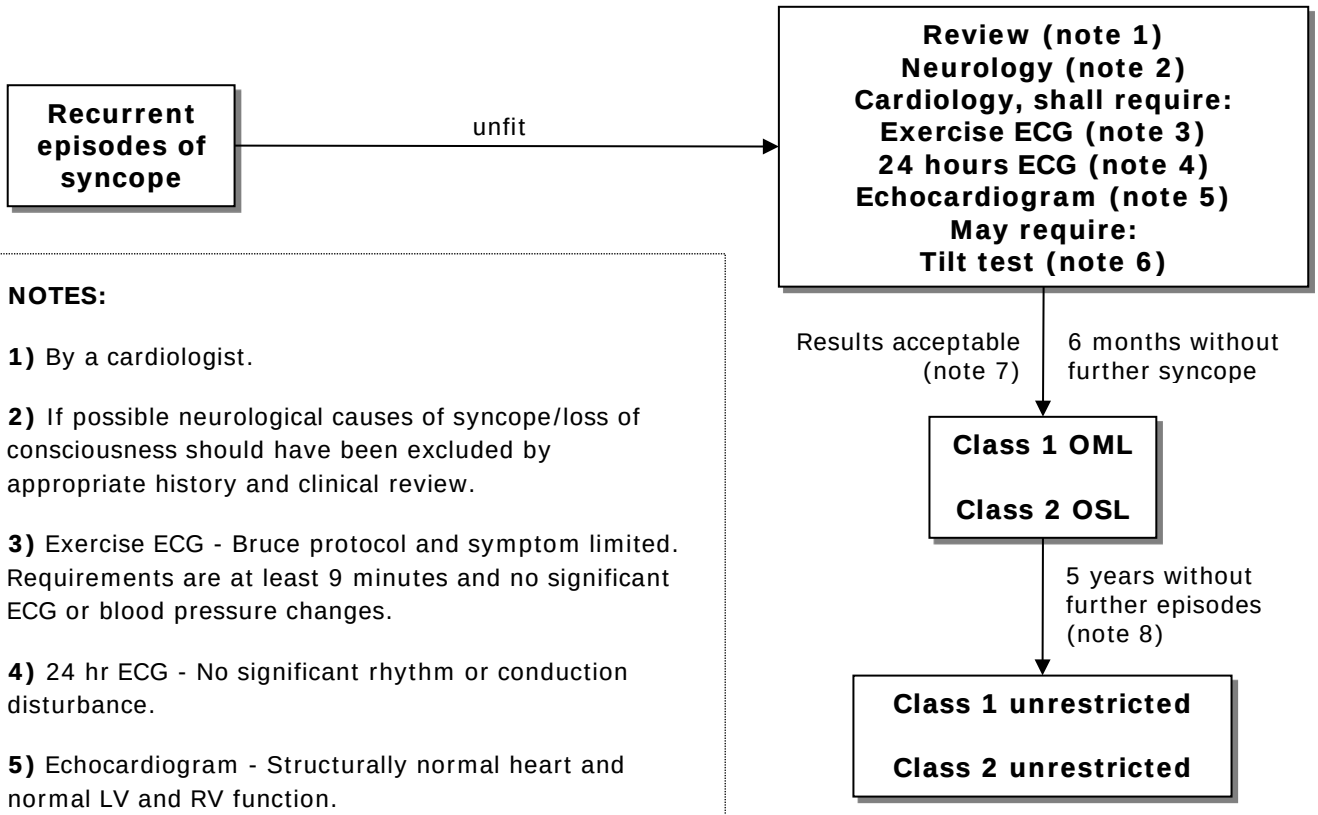
5) Echocardiography - Ejection fraction equal to or more than 50% with no significant abnormality of wall motion. Septal thickness should be less than 2,5 cm.

6) The cardiology report will be reviewed by the Medical Assessor for class 1 and by the AME for class 2. It may be necessary to see the investigations, in which case the actual tracings/films/videos will be requested. Further investigations (e.g. myocardial perfusion scan/angiography/electrophysiological studies) may be required.

7) Certification of class 2 applicants who fail to meet the requirements may be possible with an OSL or OPL.

8) Periodic follow-up, initially annual. Investigation shall include an exercise ECG, 24 hour ECG and an echocardiogram. Further investigations as indicated.

Flowchart – Neuro-cardiogenic syncope certification



NOTES:

1) By a cardiologist.

2) If possible neurological causes of syncope/loss of consciousness should have been excluded by appropriate history and clinical review.

3) Exercise ECG - Bruce protocol and symptom limited. Requirements are at least 9 minutes and no significant ECG or blood pressure changes.

4) 24 hr ECG - No significant rhythm or conduction disturbance.

5) Echocardiogram - Structurally normal heart and normal LV and RV function.

6) Tilt test to a standard protocol. Drug provocation is not necessary.

7) The reports will be reviewed by the Medical Assessor for class 1 and by the AME for class 2. It may be necessary to see the investigations , in which case the actual tracings/films/videos will be requested. Cases with loss of consciousness without significant warning shall be assessed as unfit.

8) Shorter (or longer) periods may be accepted by the Medical Assessor according to the individual circumstances.

Report specifications – Hypertension

The following subheadings are for guidance purposes only and should not be taken as an exhaustive list.

1. **Diagnoses**

2. **History**
   - Presenting symptoms
   - Nature of condition, circumstances surrounding onset, precipitating factors
   - Other relevant medical history

3. **Examination and Investigation Findings**
   - Blood pressure stabilised within acceptable parameters
     - Three blood pressure readings each taken more than 18 hours aparts or a 24 hour blood pressure recording. Readings should be taken no sooner than two weeks after commencing anti-hypertensive medication.
   - Blood tests
     - Urea and Electrolytes
     - Liver and Renal Function (Estimated Glomerular Filtration Rate)
     - Lipid Profile - serum total cholesterol and HDL cholesterol
     - Plasma glucose
   - Confirmation of no end organ damage
     - Renal disease
       1. Liver and Renal Function (Estimated Glomerular Filtration Rate)
     - Hypertensive retinopathy
   - Cardiovascular risk assessment
     - Family history, smoking, alcohol intake, weight (BMI)
     - Resting ECG
     - Exercise Tolerance Test Report where indicated (e.g. Class 1 multiple risk factors)
       1. Protocol used (e.g. Symptom limited Bruce Protocol off cardioactive medication as directed by the investigating cardiologist)
       2. Walking time
       3. Symptoms experienced
       4. ECG changes
       5. Summary and conclusions
     - Echocardiogram where indicated
       1. Valve structure and function
       2. Standard chamber dimensions
       3. Ejection Fraction (indicate measurement technique)
       4. Summary and conclusions

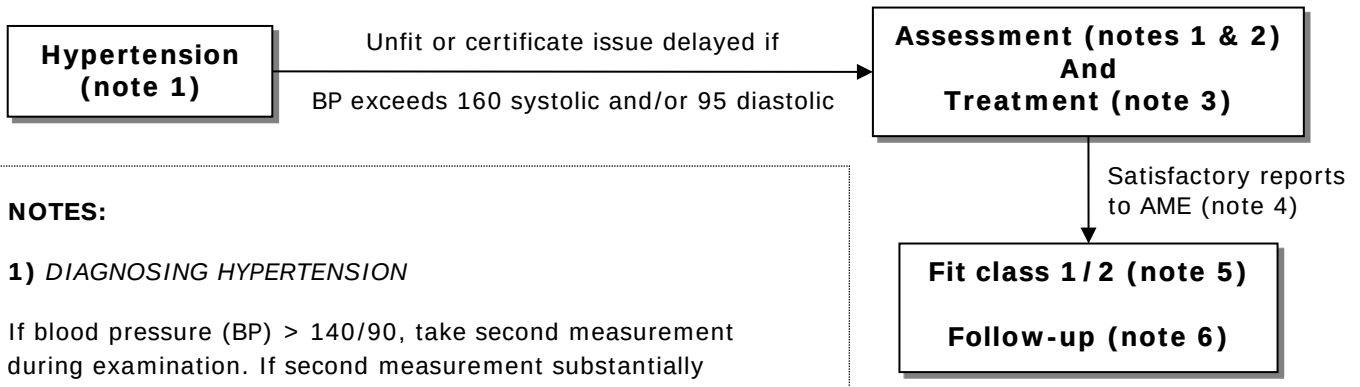
Where investigations are abnormal or borderline the hard copy traces/images are likely to be required for review.

4. **Treatment**
   - Current and recent past medication (dose, frequency, start date and finish date)
   - Confirmation no side effects from medication
   - Lifestyle interventions

5. **Follow up and further investigations/referrals planned or recommended**
   - Plan of management and anticipated follow up

6. **Clinical Implications**
   - Any concerns regarding disease progression, treatment compliance or risk of sudden incapacity

Flowchart – Hypertension certification



NOTES:

1) *DIAGNOSING HYPERTENSION*

If blood pressure (BP) > 140/90, take second measurement during examination. If second measurement substantially different, take a third measurement. Record the lower of the last 2 measurements on Med 161. If BP > 140/90, perform 24hr ambulatory BP. Use mean value of at least 14 measurements during waking hours. If 24 hr ambulatory BP cannot be tolerated or for class 2 certificate holders, home blood pressure monitoring is acceptable (for each blood pressure recording, take 2 measurements 1 minute apart, take 2 recordings a day for at least 4 days, discard 1st day measurements and use average value of remaining measurements).

2) *ASSESSMENT*

- Check for end organ damage: echocardiography should be performed if ECG shows LVH, repolarisation changes or LA overload; hypertensive retinopathy or chronic renal disease.
- Check urinalysis and urea, creatinine and electrolytes.
- Assess cardiovascular risk (using the NHG cardiovascular risk assessment tool).
- Certificate holders with hypertension should be referred to their GP or cardiologist for investigation and treatment

3) *BLOOD PRESSURE MEDICATION*

For pilots already established on a thiazide-like diuretic whose blood pressure is stable and well controlled, treatment can be continued, but if treatment plan is reviewed then alternative acceptable medications should be considered.

Acceptable medication:

- Non-Loop diuretics
- ACE inhibitors (e.g. Ramipril)
- Angiotensin II/AT1 blocking agents (sartans)
- Slow-release calcium channel blocking agents
- Beta-blocking agents (e.g. Atenolol)

Unacceptable medication:

- Centrally acting agents (e.g. methyldopa)
- Adrenergic blocking drugs (e.g. guanethidiine)
- Alpha-blocking drugs (Doxazosin may be acceptable in exceptional cases, providing not used as first line treatment- consult Medical Assessor)
- Loop diuretics (e.g. furosemide)

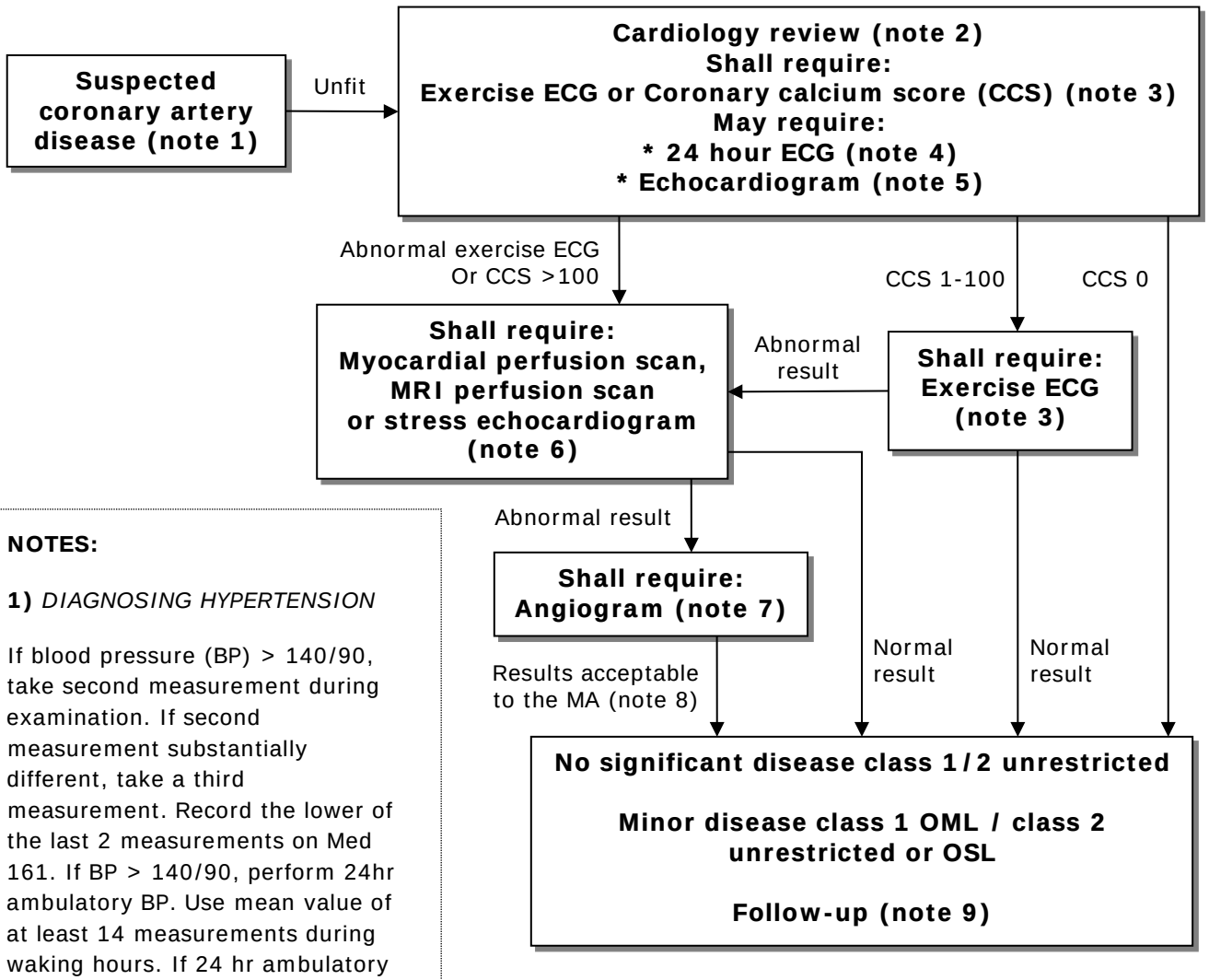
4) A full report from cardiologist or GP to the AME should confirm that the BP has stabilised on acceptable treatment (for a minimum of 2 weeks) and that the pilot has no treatment-related side-effects. If satisfactory a fit assessment can be made and/or a medical certificate issued. Reports should be sent to the Medical Assessor.

5) Pilots with complications of hypertension or multiple risk factors may need to be referred to (Class 1) or discussed with (Class 2) the Medical Assessor. Class 1 pilots with multiple risk factors (10 year cardiovascular risk ≥ 10%) should undergo periodic exercise testing. An OML may be required.

6) Pilots should provide evidence of BP stability to their AME at their periodic medical examinations.

7) Any changes in medication or dosage should be notified to an AME and will require a two week period of grounding. After two weeks the pilot should provide their AME with a report from their GP or treating specialist to confirm the changes, stability of BP and no treatment related side-effects.

Flowchart – Investigation of suspected coronary artery disease certification



NOTES:

1) *DIAGNOSING HYPERTENSION*

If blood pressure (BP) > 140/90, take second measurement during examination. If second measurement substantially different, take a third measurement. Record the lower of the last 2 measurements on Med 161. If BP > 140/90, perform 24hr ambulatory BP. Use mean value of at least 14 measurements during waking hours. If 24 hr ambulatory BP cannot be tolerated or for class 2 certificate holders, home blood pressure monitoring is acceptable (for each blood pressure recording, take 2 measurements 1 minute apart, take 2 recordings a day for at least 4 days, discard 1st day measurements and use average value of remaining measurements).

2) *ASSESSMENT*

- Check for end organ damage: echocardiography should be performed if ECG shows LVH, repolarisation changes or LA overload; hypertensive retinopathy or chronic renal disease.
- Check urinalysis and urea, creatinine and electrolytes.
- Assess cardiovascular risk (using the NHG cardiovascular risk assessment tool).
- Certificate holders with hypertension should be referred to their GP or cardiologist for investigation and treatment

3) *BLOOD PRESSURE MEDICATION*

For pilots already established on a thiazide-like diuretic whose blood pressure is stable and well controlled, treatment can be continued, but if treatment plan is reviewed then alternative acceptable medications should be considered.

Acceptable medication:

- Non-Loop diuretics
- ACE inhibitors (e.g. Ramipril)
- Angiotensin II/AT1 blocking agents (sartans)
- Slow-release calcium channel blocking agents
- Beta-blocking agents (e.g. Atenolol)

Unacceptable medication:

- Centrally acting agents (e.g. methyldopa)
- Adrenergic blocking drugs (e.g. guanethidiine)
- Alpha-blocking drugs (Doxazosin may be acceptable in exceptional cases, providing not used as first line treatment- consult Medical Assessor)
- Loop diuretics (e.g. furosemide)

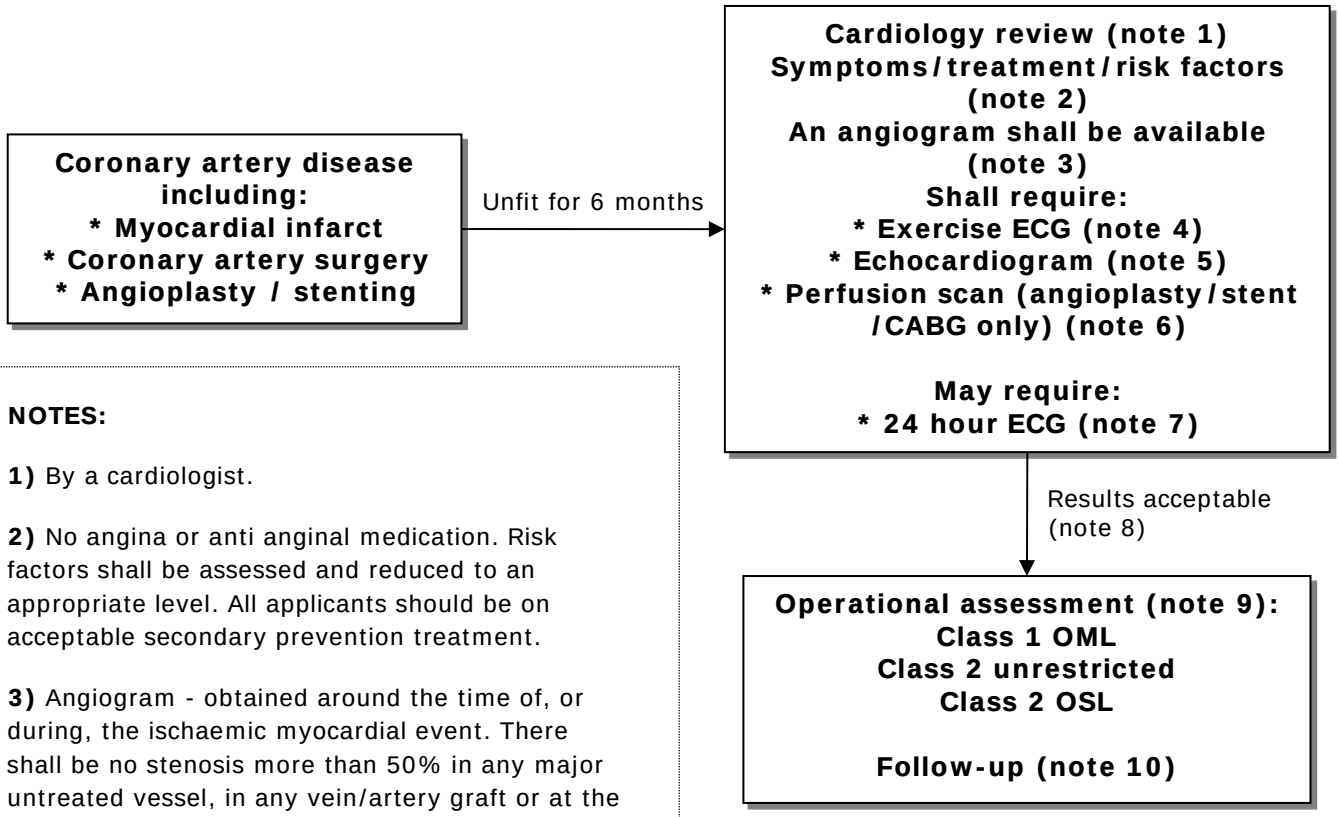
4) A full report from cardiologist or GP to the AME should confirm that the BP has stabilised on acceptable treatment (for a minimum of 2 weeks) and that the pilot has no treatment-related side-effects. If satisfactory a fit assessment can be made and/or a medical certificate issued. Reports should be sent to the Medical Assessor.

5) Pilots with complications of hypertension or multiple risk factors may need to be referred to (Class 1) or discussed with (Class 2) the Medical Assessor. Class 1 pilots with multiple risk factors (10 year cardiovascular risk ≥ 10%) should undergo periodic exercise testing. An OML may be required.

6) Pilots should provide evidence of BP stability to their AME at their periodic medical examinations.

7) Any changes in medication or dosage should be notified to an AME and will require a two week period of grounding. After two weeks the pilot should provide their AME with a report from their GP or treating specialist to confirm the changes, stability of BP and no treatment related side-effects.

Flowchart – Coronary artery disease certification



NOTES:

1) By a cardiologist.

2) No angina or anti anginal medication. Risk factors shall be assessed and reduced to an appropriate level. All applicants should be on acceptable secondary prevention treatment.

3) Angiogram - obtained around the time of, or during, the ischaemic myocardial event. There shall be no stenosis more than 50% in any major untreated vessel, in any vein/artery graft or at the site of an angioplasty/stent, except in a vessel supplying an infarct. More than two stenoses between 30% and 50% within the vascular tree should not be acceptable. The whole coronary vascular tree shall be assessed (particular attention should be paid to multiple stenoses and/or multiple revascularisations). An untreated stenosis greater than 30% in the left main or the proximal left anterior descending coronary artery should not be acceptable.

4) Exercise ECG - should be symptom limited to a minimum of Bruce stage 4 or equivalent, with no evidence of myocardial ischaemia or significant rhythm disturbance.

5) Echocardiogram - myocardial function shall be assessed and show no important abnormality of wall motion and a LV ejection fraction of 50% or more (Echo not required if ejection fraction measured by stress echocardiography or myocardial perfusion scan).

6) Myocardial perfusion scan - showing no evidence of reversible ischaemia shall be required at least 6 months after angioplasty/stenting/CABG, but not after myocardial infarction unless there is doubt about myocardial perfusion. Stress echocardiogram or MRI perfusion may be accepted in lieu of myocardial perfusion scan.

7) 24 hour ECG - may be necessary to assess the risk of any significant rhythm disturbance.

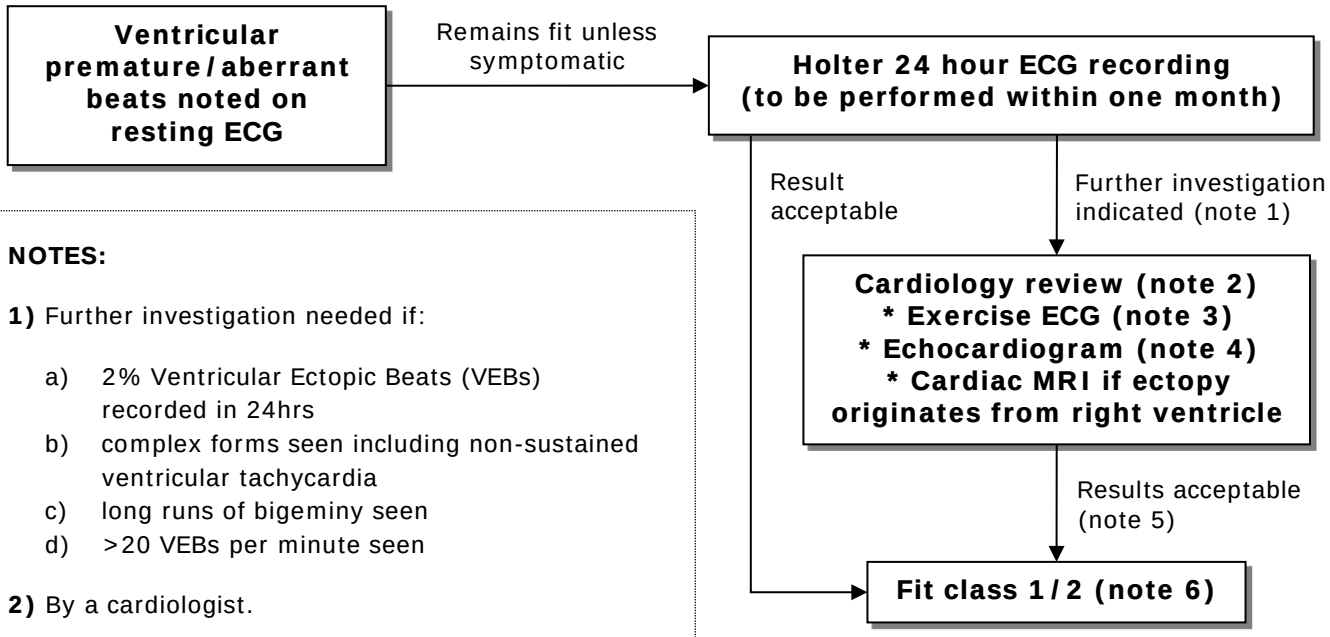
8) The cardiology report will be reviewed by the Medical Assessor (Class 1) or AME for class 2. It may be necessary to see the investigations, in which case the actual tracings/films/videos will be requested. Further investigations may be required.

9) class 1 recertification will require a multi-pilot limitation (OML). Unrestricted class 2 certification is possible having completed all the above investigations. Class 2 applicants not fully meeting the requirements may be recertificated with a safety pilot limitation (OSL) having completed a satisfactory exercise ECG test (as in note 4).

10) Periodic follow-up (at least annually for the first 5 years) shall include a specialist cardiology review, cardiovascular risk assessment and an acceptable exercise ECG (as in note 4 above). In all cases coronary angiography and/or myocardial perfusion scanning (or equivalent) shall be considered at any time if

symptoms, signs or non-invasive tests indicate cardiac ischaemia. In all cases of coronary artery bypass grafting (except class 2 OSL) a myocardial perfusion (or equivalent) scan shall be performed 5 years after the procedure (if not done before).

Flowchart – Ventricular ectopy certification



NOTES:

1) Further investigation needed if:

a) 2% Ventricular Ectopic Beats (VEBs) recorded in 24hrs
b) complex forms seen including non-sustained ventricular tachycardia
c) long runs of bigeminy seen
d) >20 VEBs per minute seen

2) By a cardiologist.

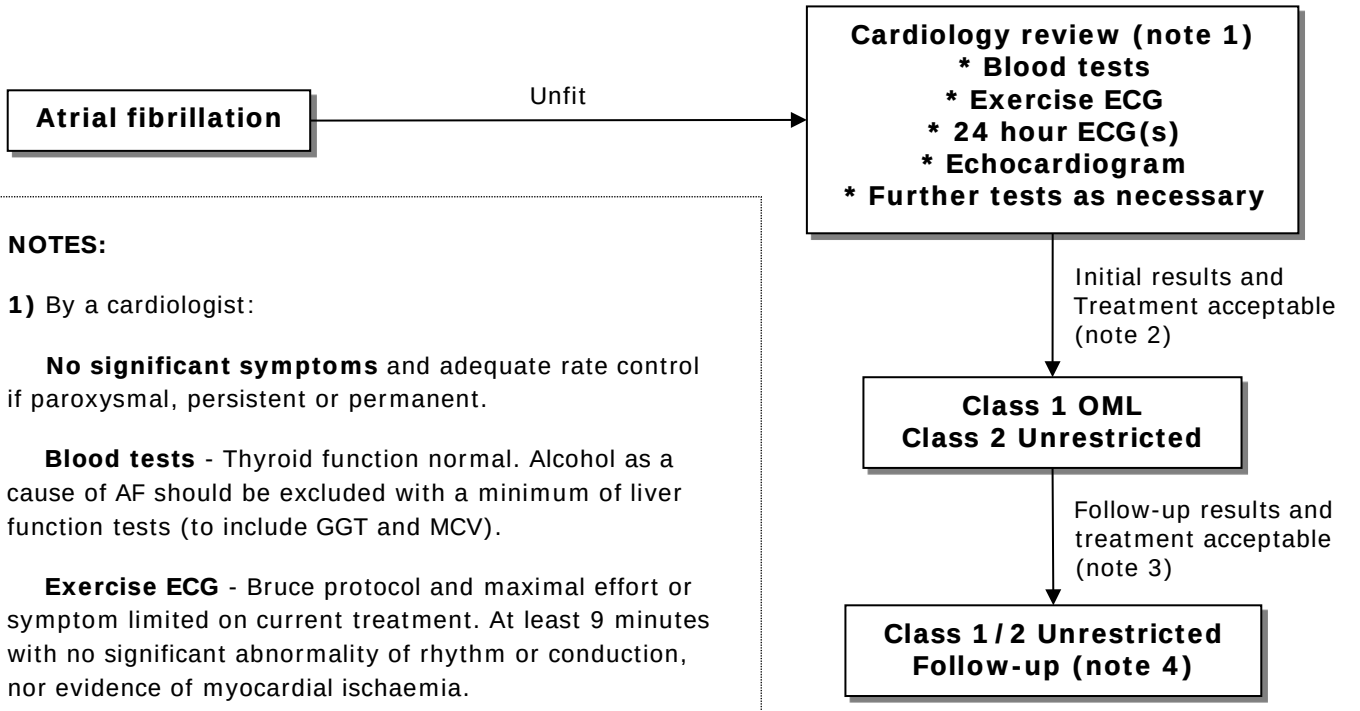
3) Exercise ECG - Bruce protocol and symptom limited. Requirements are at least 9 minutes and no significant ECG or blood pressure changes. Any abnormality may require further investigation.

4) Echocardiogram - Should reveal a structurally normal heart with normal LV/RV function.

5) The cardiology report will be reviewed by the AME. It may be necessary to refer cases to the Medical Assessor with the investigation results (the actual tracings/videos may be requested).

6) If the above investigations show a significant abnormality, an OML/OSL limitation may need to be applied by the Medical Assessor. An ectopic beat count of >7,5% of the total beat count on Holter recording will normally require an OML limitation. Periodic cardiological review may be required.

Flowchart – Atrial fibrillation certification



NOTES:

1) By a cardiologist:

No significant symptoms and adequate rate control if paroxysmal, persistent or permanent.

Blood tests - Thyroid function normal. Alcohol as a cause of AF should be excluded with a minimum of liver function tests (to include GGT and MCV).

Exercise ECG - Bruce protocol and maximal effort or symptom limited on current treatment. At least 9 minutes with no significant abnormality of rhythm or conduction, nor evidence of myocardial ischaemia.

24 hr ECG - More than one may be required. The following criteria should be met:

If in sinus rhythm - No episodes of AF and no pauses >2,5s whilst awake. Ventricular arrhythmia should not exceed an aberrant beat count >2% of total, with no complex forms.
Established AF - RR interval >300ms and <3,5s (i.e. no very rapid rates or long pauses).
Paroxysmal, persistent & permanent AF - As above plus the longest pause on recapture of sinus rhythm should not exceed 2,5s whilst awake.

Echocardiogram - Should show no significant selective chamber enlargement, or significant structural or functional abnormality, and an LVEF of 50% or more.

Further tests - May include repeat 24 hour ECG recordings, electrophysiological studies, cardiac MRI, myocardial perfusion scanning and/or coronary angiography.

2) For class 1 certificate holders the cardiology report(s) will be reviewed by the Medical Assessor. Class 2 applicants will be re-certificated by the AME in consultation with the Medical Assessor. It may be necessary to see the investigations, in which case the actual tracings/films/videos/ CDs will be requested.

CHA_2DS_2-VASc score		**Assessment of CHA_2DS_2-VASc score for certifications**
C Congestive heart failure (or Left ventricular systolic dysfunction) = 1	**V** Vascular disease (e.g. peripheral artery disease, myocardial infarction, aortic plaque) = 1	0 Class 1 OML / class 2 Unrestricted
H Hypertension = 1	**A** Age 65-74 years = 1	1 Individual assessment
A_2 Age ≥ 75 years = 2	**Sc** Sex category (i.e. female gender) = 1	2 Class 2 OSL
D Diabetes Mellitus = 1	**S_2** Prior Stroke or TIA or thromembolism = 2	>2 Unfit all classes

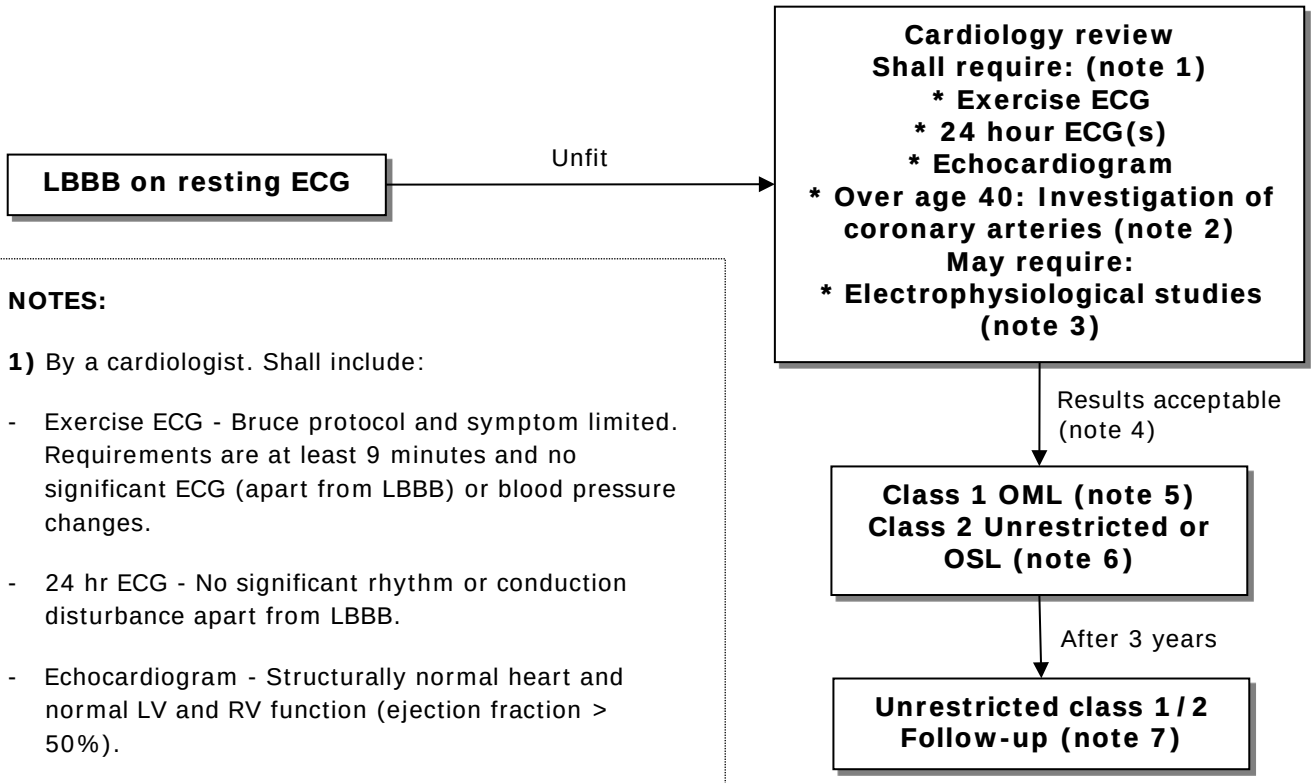
Acceptable treatment includes sotalol, bisoprolol or other beta-blocking drugs, digitalis, dronedarone (periodic blood testing required to check for hepatotoxicity), diltiazem and verapamil. Exceptionally flecainide or propafenone may be used in consultation with the Medical Assessor (with 6 months

demonstrated stability). Amiodarone is normally unacceptable for class 1, but may be acceptable for class 2 (maximum dose 200mg daily, night flying will require a Medical Assessor ophthalmological review).

3) Initial cardiological follow-up should be 6 monthly to include a minimum of 24 hour ECG monitoring. Subsequent follow-up at the discretion of the Medical Assessor, normally annual cardiological review with 24hr ECG and echocardiogram. Other tests if clinically indicated.

4) After 2 years follow up for class 1, only applicants with a single original episode of AF with no recurrence may be able to achieve unrestricted class 1 certification. Subsequent follow up normally annual with 24hr ECG.

Flowchart – Left bundle branch block (LBBB) certification



NOTES:

1) By a cardiologist. Shall include:

- Exercise ECG - Bruce protocol and symptom limited. Requirements are at least 9 minutes and no significant ECG (apart from LBBB) or blood pressure changes.
- 24 hr ECG - No significant rhythm or conduction disturbance apart from LBBB.
- Echocardiogram - Structurally normal heart and normal LV and RV function (ejection fraction > 50%).

2) Coronary artery investigation - shall be required in all applicants over the age of 40. A myocardial perfusion scan, stress echo, CT angiogram or cardiac MRI will normally be sufficient. Pharmacological stress should be used to avoid difficulties in the interpretation of septal perfusion.

3) Electrophysiological studies - should be performed if the PR interval is >200 msec, and possibly if the ECG shows an abnormal axis. The HV interval should be less than 100 msec.

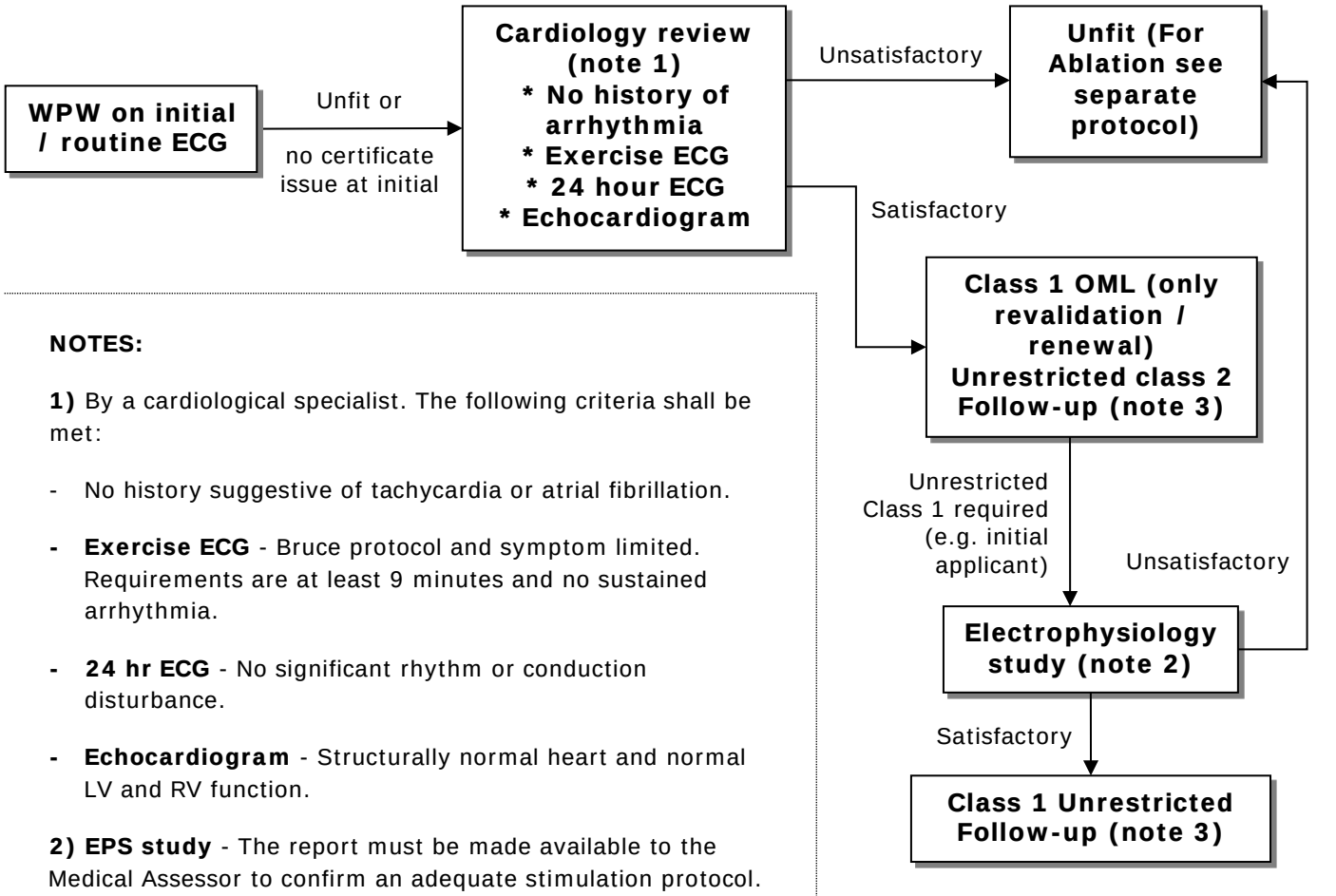
4) For class 1 applicants the cardiology report will be reviewed by the Medical Assessor. It may be necessary to see the investigations in which case the actual tracings/films/videos will be requested.

5) class 1 certification - Satisfactory investigations will allow class 1 OML. Annual cardiology review with a minimum of an exercise ECG. Review at 3 years should also include a 24 hour ECG and echocardiogram. If satisfactory - unrestricted class 1 can be issued. Initial class 1 applicants will need to show a 3 year period of stability, as above, before a class 1 certificate can be issued.

6) class 2 certification - Satisfactory investigations will allow unrestricted class 2. If coronary artery investigation was not done at initial assessment, class 2 applicants over the age of 40 may need to be restricted to OSL (safety pilot). For these pilots unrestricted class 2 certification can be considered after 3 years satisfactory follow up as in note 4 above.

7) Follow up after the 3 year period: pilots with long standing LBBB should expect to be asked to have occasional cardiology reviews to check that all remains well, particularly if any changes are noted on the resting ECG.

Flowchart – Wolff-Parkinson-White (WPW) pre-excitation certification



NOTES:

1) By a cardiological specialist. The following criteria shall be met:

- No history suggestive of tachycardia or atrial fibrillation.
- **Exercise ECG** - Bruce protocol and symptom limited. Requirements are at least 9 minutes and no sustained arrhythmia.
- **24 hr ECG** - No significant rhythm or conduction disturbance.
- **Echocardiogram** - Structurally normal heart and normal LV and RV function.

2) EPS study - The report must be made available to the Medical Assessor to confirm an adequate stimulation protocol. It must include an isoprenaline / adrenaline infusion sufficient to increase the sinus rate by 25%.

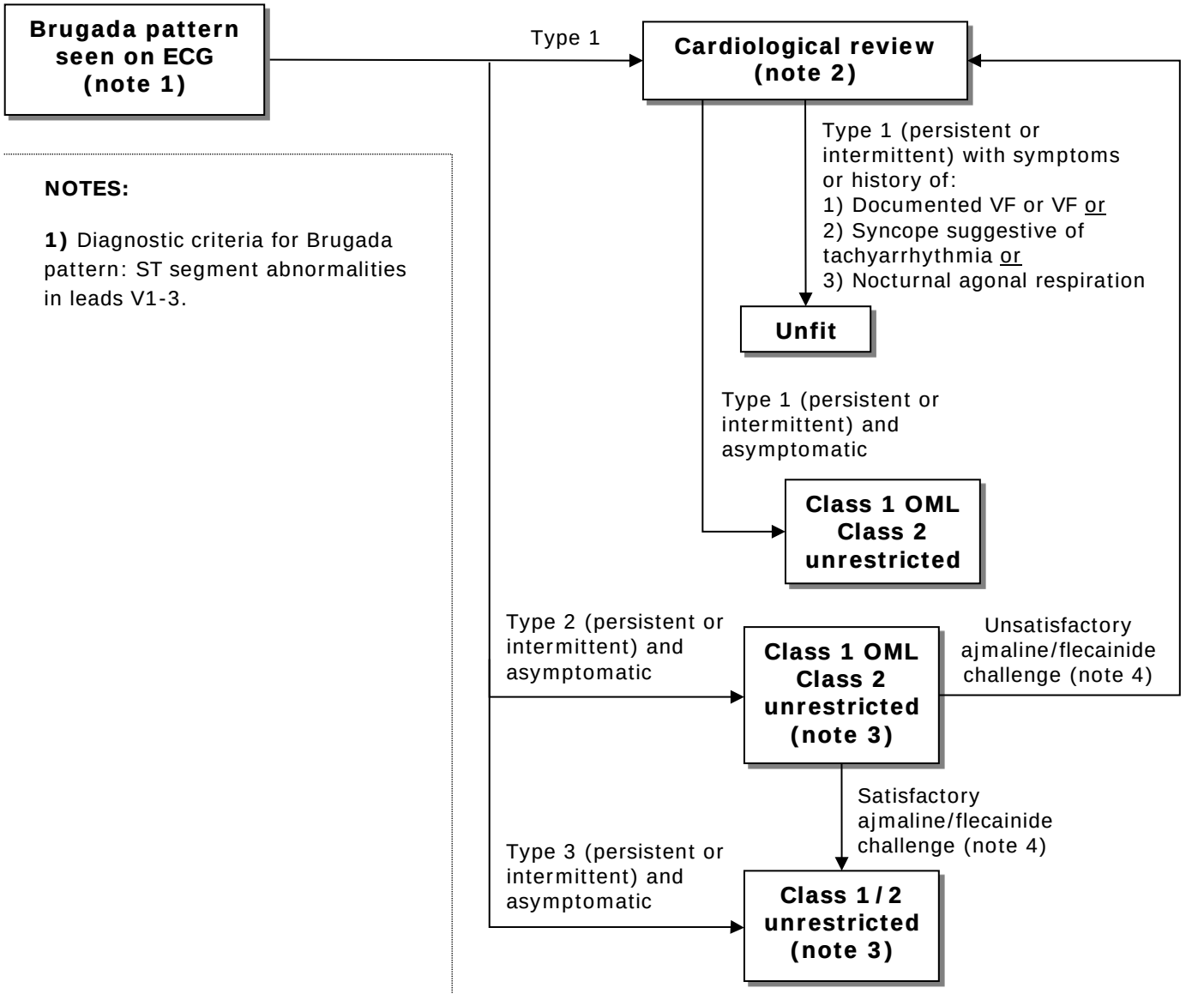
The following criteria shall be met:

- No inducible atrioventricular re-entry tachycardia
- Delta-delta interval during atrial fibrillation >300 ms (>250 ms with isoprenaline)
- Antegrade refractory period of accessory pathway >300 ms (>250 ms with isoprenaline)
- Cycle length with 1:1 accessory pathway conduction >300 ms (>250 ms with isoprenaline)
- No evidence of multiple pathways

The report will be reviewed by the Medical Assessor.

3) class 1 follow up shall be at the discretion of the Medical Assessor.

Flowchart – Brugada certification



NOTES:

1) Diagnostic criteria for Brugada pattern: ST segment abnormalities in leads V1-3.

	Type 1
J point	≥2 mm
T wave	Negative
ST-T configuration	Coved type
ST segment (terminal portion)	Gradually descending

	Type 2
J point	≥2 mm
T wave	Positive or biphasic
ST-T configuration	Saddleback
ST segment (terminal portion)	Elevated ≥1 mm

	Type 3
J point	≥2 mm

T wave	Positive
ST-T configuration	Saddleback
ST segment (terminal portion)	Elevated <1 mm

Asymptomatic type 1 and type 2 cases may continue to fly class 1 OML / class 2 unrestricted.

2) Type 1 cases need review by a cardiologist. Investigations should include:

Exercise ECG: to the Bruce protocol or equivalent. The test should be to maximum effort or symptom limited. Bruce stage 4 should be achieved and no significant abnormality of rhythm or conduction, nor evidence of myocardial ischaemia shall be demonstrated. Withdrawal of cardioactive medication prior to the test should be considered (not beta-blockade for atrial fibrillation).

24-hour ambulatory ECG: shall demonstrate no significant rhythm or conduction disturbance.

Echocardiogram: shall show no significant selective chamber enlargement, or significant structural or functional abnormality, and a left ventricular ejection fraction of at least 50%.

Cardiac MRI: should exclude ARVD. The cardiology report(s) will be reviewed by the Medical Assessor. It may be necessary to see the investigations, in which case the actual results will be requested. Type 1 cases who are symptomatic or have evidence of tachyarrhythmia shall be assessed as unfit.

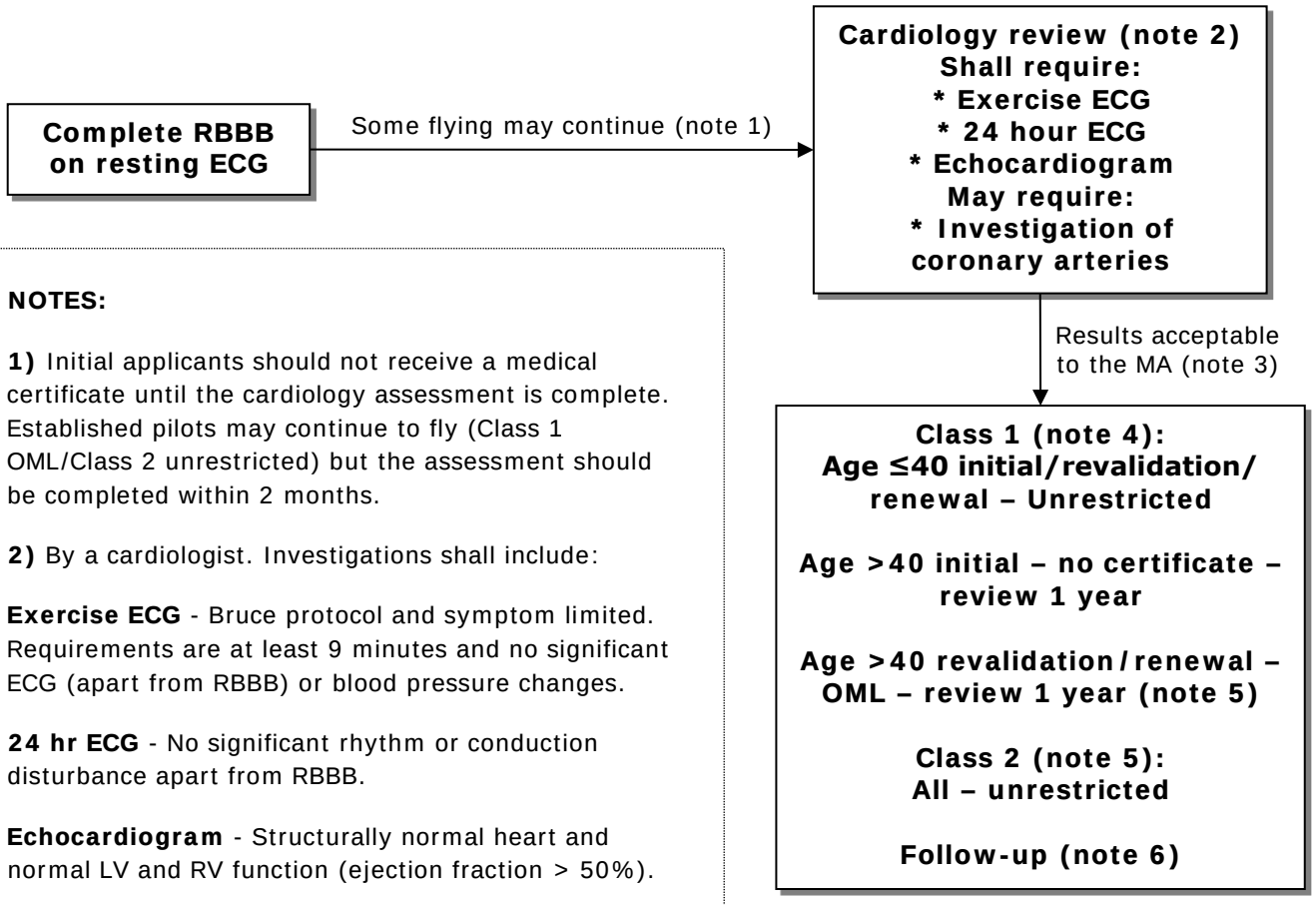
3) At least annual ECG.

4) Applicants wanting to be considered for unrestricted class 1 will need to undergo a challenge test consisting of Ajmaline 1mg/kg over 5 minutes intravenously or Flecainide 2mg/kg over 15 minutes (maximum dose 150mg). Indications for termination are to be determined by the prescriber; they may include:

a) Development of Type 1 Brugada ECG
b) Greater than or equal to 2mm increase in ST elevation in patients with Type 2 Brugada ECG
c) The development of VPBs or other arrhythmias
d) Widening of QRS greater than or equal to 30% above baseline

If acceptable, applicants will be considered for unrestricted class 1. If Type 1 changes seen during Ajmaline or Flecainide challenge, the applicant will need to comply with note 2.

Flowchart – Complete Right bundle branch block (RBBB) certification



NOTES:

1) Initial applicants should not receive a medical certificate until the cardiology assessment is complete. Established pilots may continue to fly (Class 1 OML/Class 2 unrestricted) but the assessment should be completed within 2 months.

2) By a cardiologist. Investigations shall include:

Exercise ECG - Bruce protocol and symptom limited. Requirements are at least 9 minutes and no significant ECG (apart from RBBB) or blood pressure changes.

24 hr ECG - No significant rhythm or conduction disturbance apart from RBBB.

Echocardiogram - Structurally normal heart and normal LV and RV function (ejection fraction > 50%).

Further evaluation may be required (for example investigation of the coronary arteries) if any of the above investigations are abnormal.

3) For class 1 applicants the cardiology report will be reviewed by the Medical Assessor. It may be necessary to see the investigations in which case the actual tracings/films/videos/CDs will be requested.

4) class 1 applicants age 40 or under (initial and revalidation/renewal) may have unrestricted certification.

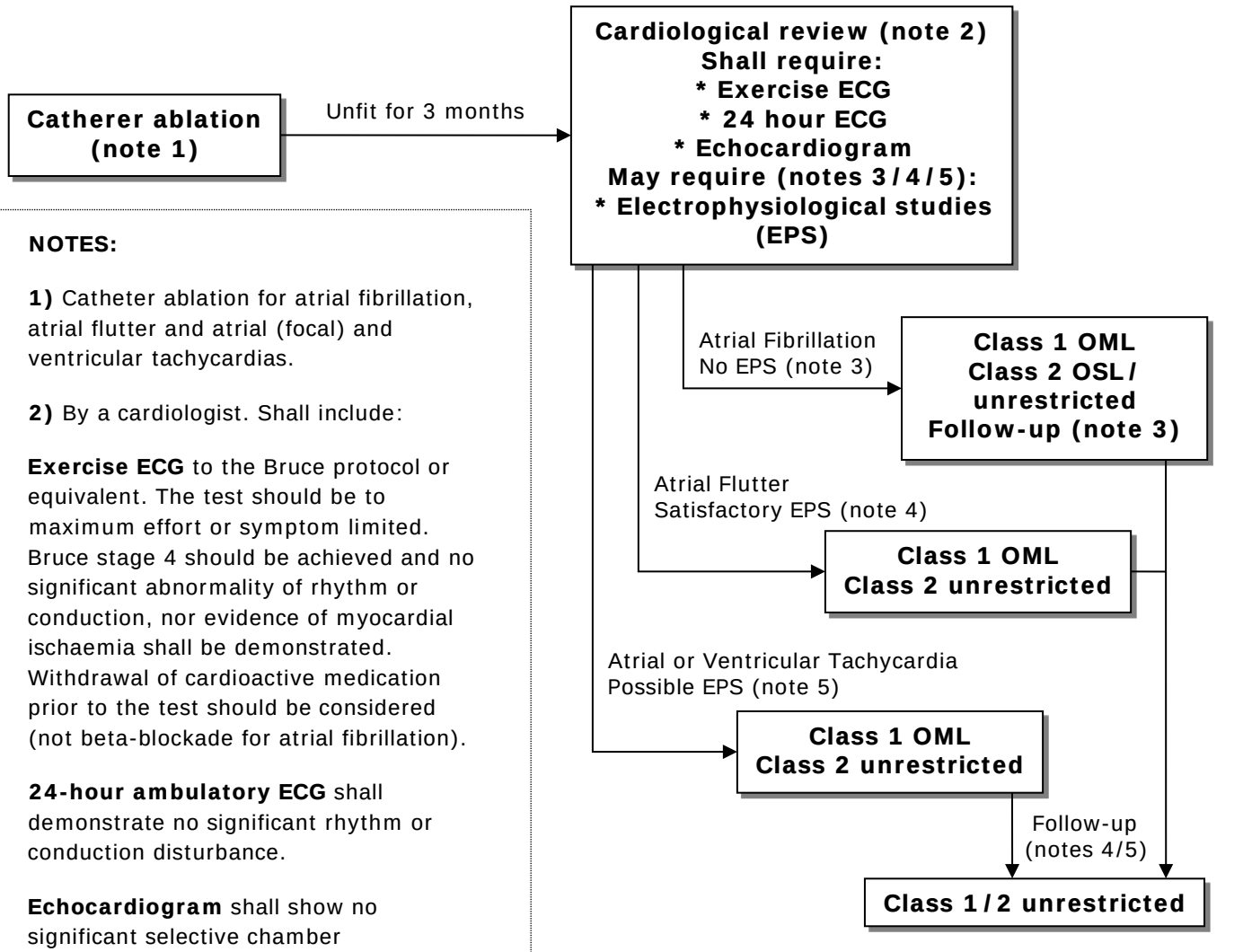
Initial class 1 applicants over age 40 cannot be certificated until completing a satisfactory follow up review at one year to include an exercise ECG.

Class 1 applicants over age of 40 for revalidation/renewal will need an OML and a review again in a year to include an exercise ECG. At that time an unrestricted certificate can be issued if there is no change. If there has been a documented gradual progression from incomplete RBBB to complete RBBB over several years, there will be no requirement for an OML.

5) class 2 applicants can have unrestricted certification if all the requirements are met. Certification with OSL may be possible if only some requirements are achieved.

6) Pilots with long standing RBBB should expect to be asked to have occasional cardiology reviews to check that all remains well, particularly if there is a change to the resting ECG.

Flowchart – Catheter ablation for tachycardia certification (except WPW and AVNRT)



NOTES:

1) Catheter ablation for atrial fibrillation, atrial flutter and atrial (focal) and ventricular tachycardias.

2) By a cardiologist. Shall include:

Exercise ECG to the Bruce protocol or equivalent. The test should be to maximum effort or symptom limited. Bruce stage 4 should be achieved and no significant abnormality of rhythm or conduction, nor evidence of myocardial ischaemia shall be demonstrated. Withdrawal of cardioactive medication prior to the test should be considered (not beta-blockade for atrial fibrillation).

24-hour ambulatory ECG shall demonstrate no significant rhythm or conduction disturbance.

Echocardiogram shall show no significant selective chamber enlargement, or significant structural or functional abnormality, and a left ventricular ejection fraction of at least 50%. The cardiology report(s) will be reviewed by the Medical Assessor for class 1 and the AME for class 2. It may be necessary to see the investigations, in which case the actual results will be requested.

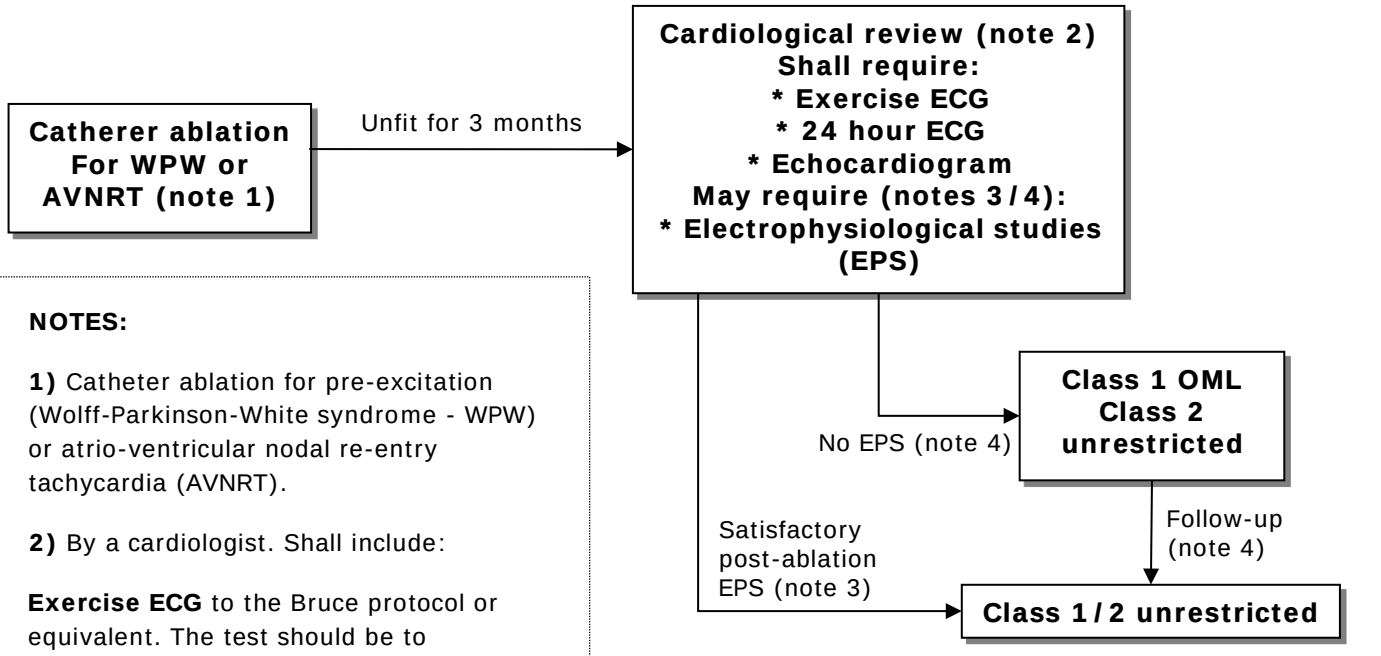
3) Atrial Fibrillation: Post ablation EPS may not predict recurrence and is not a requirement. However, because of the relatively high risk of recurrence, class 1 applicants require an OML. Unrestricted class 1 may be considered after 2 years of satisfactory follow up. Class 2 applicants who were symptomatic pre-ablation may need an OSL. Follow-up: usually annual with 24hr ECG.

4) Atrial Flutter: Post ablation EPS (bi-directional isthmus block) will be required in most cases 2 months after the ablation procedure to demonstrate abolition of flutter circuit. Because of the subsequent unpredictable risk of atrial fibrillation, class 1 applicants shall have an OML for 1 year, which may be removed with a satisfactory review. Unrestricted class 2 certification may be appropriate, also with annual review.

5) Atrial and Ventricular Tachycardia: class 1/2 applicants with a pre-ablation history of significant tachycardia (syncope or haemodynamic compromise) will require post ablation EPS to check that tachycardia is no longer inducible. For all applicants (with or without EPS) class 1 OML and unrestricted class 2 certification is likely to be appropriate with review at 1 year. If satisfactory the OML can be removed.

In all cases, failure to meet the standards may require OML/OSL and/or extended follow-up.

Flowchart – Catheter ablation for WPW syndrome and AVNRT certification



NOTES:

1) Catheter ablation for pre-excitation (Wolff-Parkinson-White syndrome - WPW) or atrio-ventricular nodal re-entry tachycardia (AVNRT).

2) By a cardiologist. Shall include:

Exercise ECG to the Bruce protocol or equivalent. The test should be to maximum effort or symptom limited. Bruce stage 4 should be achieved and no significant abnormality of rhythm or conduction, nor evidence of myocardial ischaemia shall be demonstrated. Withdrawal of beta blockade or other anti-arrhythmic treatment should be considered prior to the test.

24-hour ambulatory ECG shall demonstrate no significant rhythm or conduction disturbance.

Echocardiogram shall show no significant selective chamber enlargement, or significant structural or functional abnormality, and a left ventricular ejection fraction of at least 50%.The cardiology report(s) will be reviewed by the Medical Assessor for class 1 and by the AME for class 2. It may be necessary to see the investigations, in which case the actual results will be requested.

3) Applicants seeking unrestricted class 1 certification and any applicant (Class 1/2) with a history of significant tachycardia (syncope or haemodynamic compromise) shall have a satisfactory post ablation EPS:

Pre-excitation - No evidence of accessory pathway conduction pre or post isoprenaline/adrenaline. For WPW where antegrade conduction was present pre-ablation, a satisfactory adenosine test may be sufficient.

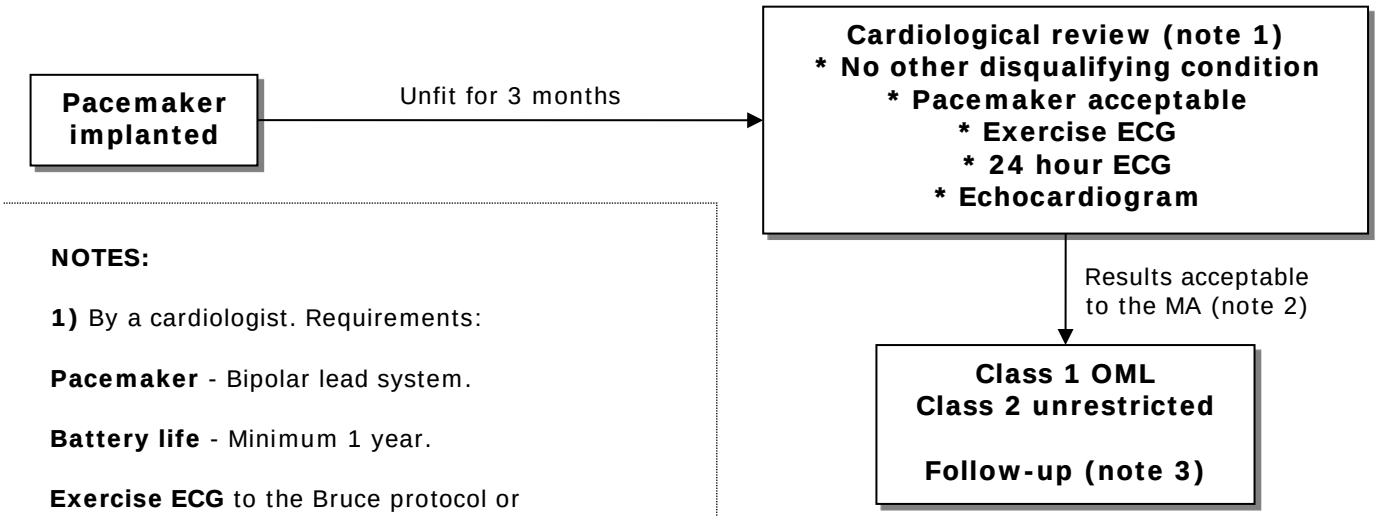
AVNRT - No inducible tachycardia pre or post isoprenaline/adrenaline. Dual pathways and single echoes are acceptable.

Failure to reach these requirements will require a period with an OML/OSL and follow up as in note 4 below.

4) Other class 1 applicants with satisfactory tests as in note 2 above, who elect not to have a post ablation EPS will require an OML and follow up. Satisfactory review in 1 year should allow unrestricted class 1 certification.

Other class 2 applicants who elect not to have a post ablation EPS may gain an unrestricted certificate with satisfactory tests as in note 2 above. Further review may not be necessary. Failure to achieve the requirements may require an OSL.

Flowchart – Implantation of a cardiac pacemaker certification



NOTES:

1) By a cardiologist. Requirements:

Pacemaker - Bipolar lead system.

Battery life - Minimum 1 year.

Exercise ECG to the Bruce protocol or equivalent. The test should be to maximum effort or symptom limited. Bruce stage 4 should be achieved and no significant abnormality of rhythm or conduction, nor evidence of myocardial ischaemia shall be demonstrated. Withdrawal of cardioactive medication prior to the test should be considered.

24-hour ambulatory ECG shall demonstrate no significant rhythm or conduction disturbance.

Echocardiogram shall show no significant selective chamber enlargement, or significant structural or functional abnormality, and a left ventricular ejection fraction of at least 50%.

2) For class 1 applicants, the cardiology report will be reviewed by the Medical Assessor. It may be necessary to see the investigations, in which case the actual tracings/videos will be requested.

3) Follow-up will normally be a minimum of a six monthly pacemaker check and an annual cardiology review.

MED.B.015 – Luchtwegenstelsel

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
(a) Aanvragers met een significant verslechterde longfunctie worden als ongeschikt beoordeeld. Een beoordeling van geschiktheid kan worden overwogen als de longfunctie hersteld is en bevredigend is. ***(b)*** Voor een medisch certificaat klasse 1 moeten aanvragers longfunctietests ondergaan bij het eerste onderzoek en op klinische indicatie. ***(c)*** Voor een medisch certificaat klasse 2 moeten aanvragers longfunctietests ondergaan op klinische indicatie.	**Class 1** ***(a) Examinations*** ***(1)*** *Spirometry* Spirometric examination is required for initial examination. An FEV_1/FVC ratio less than 70% at initial examination should require evaluation by a specialist in respiratory disease. ***(2)*** *Chest radiography* Posterior/anterior chest radiography may be required at initial, revalidation or renewal examinations when indicated on clinical or epidemiological grounds. **Class 2** ***(a)*** *Chest radiography* Posterior/anterior chest radiography may be required if indicated on clinical grounds.	**Exercise spirometry testing** Exercise spirometry testing is required if there is any of the following: 1. Abnormal lung function: Class 1: FEV_1/FVC <70% Class 2: Peak flow <80% predicted 2. History of asthma: Class 1 current of within last 5 yrs Class 2 current of within last 2 yrs Asthma needing regular (>once per 3 months) use of any inhaler 3. Any other indication Report specifications – Respiratory
(d) Aanvragers met een geschiedenis of vastgestelde diagnose van: ***(1)*** astma waarvoor medicatie nodig is;	**Class 1 & 2** ***(c)*** *Asthma* Applicants with asthma requiring medication or experiencing recurrent attacks of asthma, may be assessed as fit if the asthma is considered stable with satisfactory pulmonary function tests and medication is compatible with flight safety. Systemic steroids are disqualifying.	**Asthma** Initial class 1 applicants or class 1 holders with a new diagnosis of asthma require review by a pulmonologist. Class 1 holders with an established diagnosis of asthma who are stable, or initial class 2 applicants, require a review by a pulmonologist, to include exercise spirometry and details of medication required. A history of asthma attacks requiring acute medical intervention/admission within past 5 years for class 1 and 2 years for class 2 and/or repeated courses of oral steroids/frequent exacerbations is normally disqualifying. Report specifications – Respiratory **Asthma Medication** Oral steroids are disqualifying for certification. Inhaled beta 2 agonists, anticholinergic medication, corticosteroids, cromoglycate and the leukotriene receptor antagonists, such as montelukast, are acceptable for certification.
(2) actieve ontstekingsziekte van het luchtwegenstelsel;	**Class 1** ***(b)*** *Chronic obstructive airways disease* Applicants with chronic obstructive airways disease should be assessed as unfit. Applicants with only minor impairment of their pulmonary function may be assessed as fit. ***(d)*** *Inflammatory disease* For applicants with active inflammatory disease of the respiratory system, a fit	

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
	assessment may be considered when the condition has resolved without sequelae and no medication is required. **Class 2** ***(b)*** *Chronic obstructive airways disease* Applicants with only minor impairment of pulmonary function may be assessed as fit. ***(d)*** *Inflammatory disease* Applicants with active inflammatory disease of the respiratory system should be assessed as unfit pending resolution of the condition.	
(3) actieve sarcoïdose;	**Class 1** ***(e)*** *Sarcoidosis* ***(1)*** Applicants with active sarcoidosis should be assessed as unfit. Investigation should be undertaken with respect to the possibility of systemic, particularly cardiac, involvement. A fit assessment may be considered if no medication is required, and the disease is investigated and shown to be limited to hilar lymphadenopathy and inactive. ***(2)*** Applicants with cardiac sarcoid should be assessed as unfit. **Class 2** ***(e)*** *Sarcoidosis* ***(1)*** Applicants with active sarcoidosis should be assessed as unfit. Investigation should be undertaken with respect to the possibility of systemic involvement. A fit assessment may be considered once the disease is inactive. ***(2)*** Applicants with cardiac sarcoid should be assessed as unfit.	Flowchart – Sarcoidosis certification Report specifications – Respiratory
(4) pneumothorax;	**Class 1** ***(f)*** *Pneumothorax* ***(1)*** Applicants with a spontaneous pneumothorax should be assessed as unfit. A fit assessment may be considered if respiratory evaluation is satisfactory: ***(i)*** one year following full recovery from a single spontaneous pneumothorax; ***(ii)*** at revalidation, six weeks following full recovery from a single spontaneous pneumothorax, with a multi-pilot limitation; ***(iii)*** following surgical intervention in the case of a recurrent pneumothorax provided there is satisfactory recovery. ***(2)*** A recurrent spontaneous pneumothorax that has not been surgically treated is disqualifying.	**Pneumothorax** Acceptable surgical treatment includes thoracotomy, oversewing of apical blebs, parietal pleurectomy and Video Assisted Thoracic Surgery (VATS) pleurectomy. Recertification can be undertaken six weeks after a VATS pleurectomy. For other procedures, recertification may require a longer grounding period. If 6 weeks following successful surgical treatment with a normal post-operative chest radiograph, unrestricted initial class 1 and 2 medical certification can be considered. If surgical treatment is not undertaken, an OML for class 1 is required for one year following the pneumothorax due to the possible risk of recurrence. Report specifications – Respiratory

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
	(3) A fit assessment following full recovery from a traumatic pneumothorax as a result of an accident or injury may be acceptable once full absorption of the pneumothorax is demonstrated. **Class 2** ***(f)*** *Pneumothorax* ***(1)*** Applicants with spontaneous pneumothorax should be assessed as unfit. A fit assessment may be considered if respiratory evaluation is satisfactory six weeks following full recovery from a single spontaneous pneumothorax or following recovery from surgical intervention in the case of treatment for a recurrent pneumothorax. ***(2)*** A fit assessment following full recovery from a traumatic pneumothorax as a result of an accident or injury may be acceptable once full absorption of the pneumothorax is demonstrated.	
(5) slaapapneusyndroom;	**Class 1 & 2** ***(h)*** *Sleep apnoea syndrome* Applicants with unsatisfactorily treated sleep apnoea syndrome should be assessed as unfit.	Flowchart – Obstructive sleep apnoea certification Report specifications – Respiratory
(6) grote borstoperatie;	**Class 1** ***(g)*** *Thoracic surgery* ***(1)*** Applicants requiring major thoracic surgery should be assessed as unfit for a minimum of three months following operation or until such time as the effects of the operation are no longer likely to interfere with the safe exercise of the privileges of the applicable licence(s). ***(2)*** A fit assessment following lesser chest surgery may be considered by the licensing authority after satisfactory recovery and full respiratory evaluation. **Class 2** ***(g)*** *Thoracic surgery* Applicants requiring major thoracic surgery should be assessed as unfit until such time as the effects of the operation are no longer likely to interfere with the safe exercise of the privileges of the applicable licence(s).	
(7) pneumonectomie;		
moeten evaluatie van de luchtwegen ondergaan met een bevredigend resultaat alvorens een beoordeling van		

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
geschiktheid kan worden overwogen. Aanvragers met een vastgestelde diagnose van de aandoeningen die in punt ***(3)*** en ***(5)*** zijn gespecificeerd, ondergaan een bevredigende cardiologische evaluatie alvorens een beoordeling van geschiktheid kan worden overwogen.		
(e) Luchtvaartmedische beoordeling: ***(1)*** aanvragers van een medisch certificaat klasse 1 met een van de aandoeningen die in punt ***(d)*** hierboven worden beschreven, worden verwezen naar de autoriteit die het bewijs van bevoegdheid afgeeft; ***(2)*** aanvragers van een medisch certificaat klasse 2 met een van de aandoeningen die in punt ***(d)*** hierboven worden beschreven, worden beoordeeld in overleg met de autoriteit die het bewijs van bevoegdheid afgeeft;		
(f) Aanvragers van een medisch certificaat klasse 1 die een algehele pneumonectomie hebben ondergaan, worden als ongeschikt beoordeeld.		

Report specifications – Respiratory

The following subheadings are for guidance purposes only and should not be taken as an exhaustive list.

1. **Diagnoses**

2. **History**
   - Current/presenting symptoms
     - Shortness of breath, wheeze or bronchospasm, nocturnal symptoms
     - Circumstances surrounding onset, precipitating factors
     - Residual impairment or loss of function
   - Confirmation of any systemic involvement
   - Details of respiratory events within past 5 years (including treatment and admissions)
   - Childhood and other relevant medical history
   - Family history

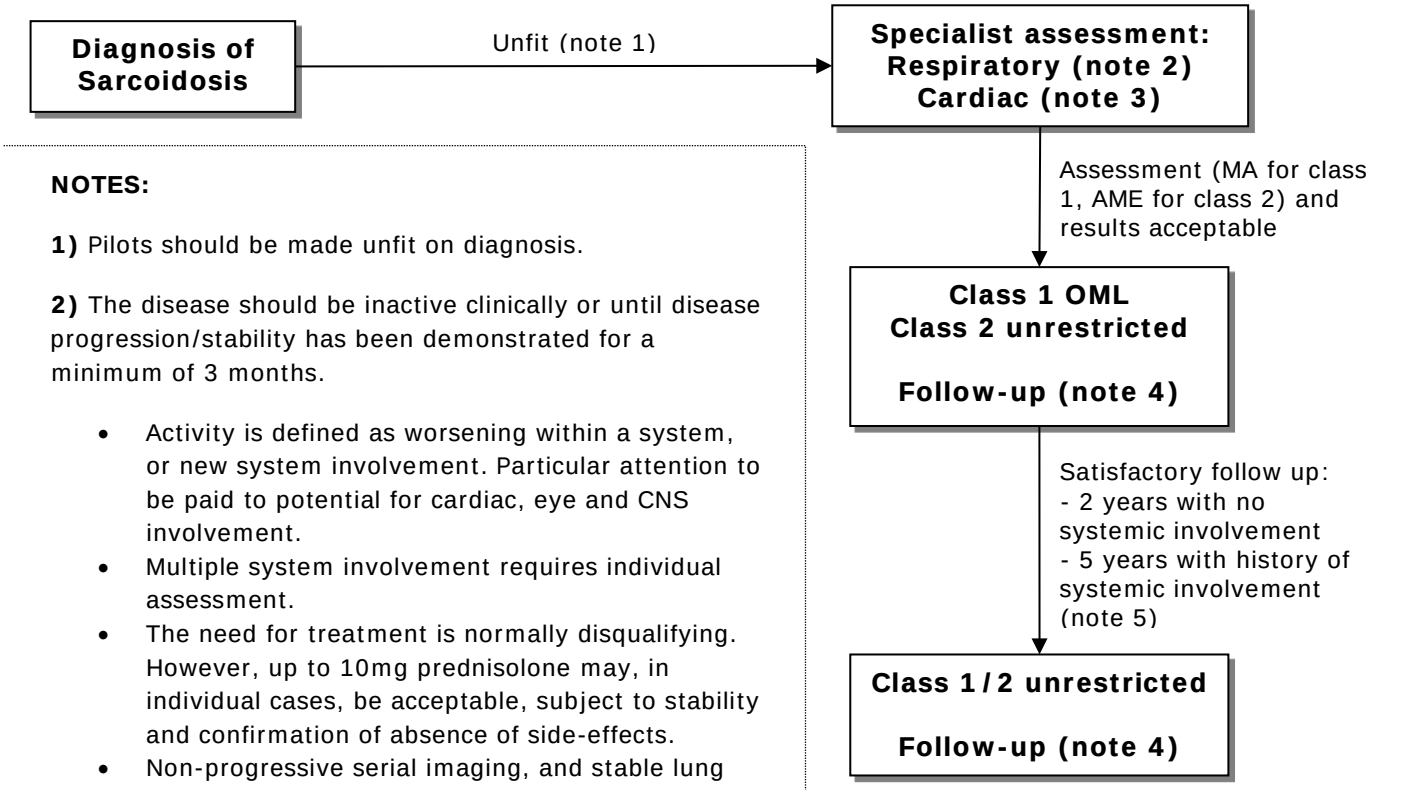
3. **Examination and Investigation Findings**
   - Clinical findings
   - Standard spirometry and/or exercise spirometry
   - Bronchial reactivity/reversibility test (if indicated)
   - Radiology imaging reports (e.g. x-ray, serial imaging if indicated)
   - Other investigations (e.g. bronchoscopy/thoracoscopy if performed)

4. **Treatment**
   - Current and recent past medication (dose, frequency, start date and finish date)
     - Include frequency of bronchodilator use (as applicable)
   - Confirmation no side effects from medication
   - Current and past history of systemic steroids
   - Other treatments must be detailed (BTS guidelines)
     - For OSAS CPAP report included with medical report
   - Surgical reports (where performed)

5. **Follow up and further investigations/referrals planned or recommended**
   - Anticipated follow up/frequency of clinical reviews and investigations
   - Prognosis and risk of recurrence
   - Confirmation of full recovery or remission on maintenance dose of acceptable medication and well controlled at date of report

6. **Clinical Implications**
   - Any concerns regarding disease progression, treatment compliance or risk of sudden incapacity

Flowchart – Sarcoidosis certification



NOTES:

1) Pilots should be made unfit on diagnosis.

2) The disease should be inactive clinically or until disease progression/stability has been demonstrated for a minimum of 3 months.

- Activity is defined as worsening within a system, or new system involvement. Particular attention to be paid to potential for cardiac, eye and CNS involvement.
- Multiple system involvement requires individual assessment.
- The need for treatment is normally disqualifying. However, up to 10mg prednisolone may, in individual cases, be acceptable, subject to stability and confirmation of absence of side-effects.
- Non-progressive serial imaging, and stable lung function (<10%/yr fall in FVC or <15%/yr fall in gas transfer factor (no lower than 70% of predicted)).

3) Cardiology review to include:

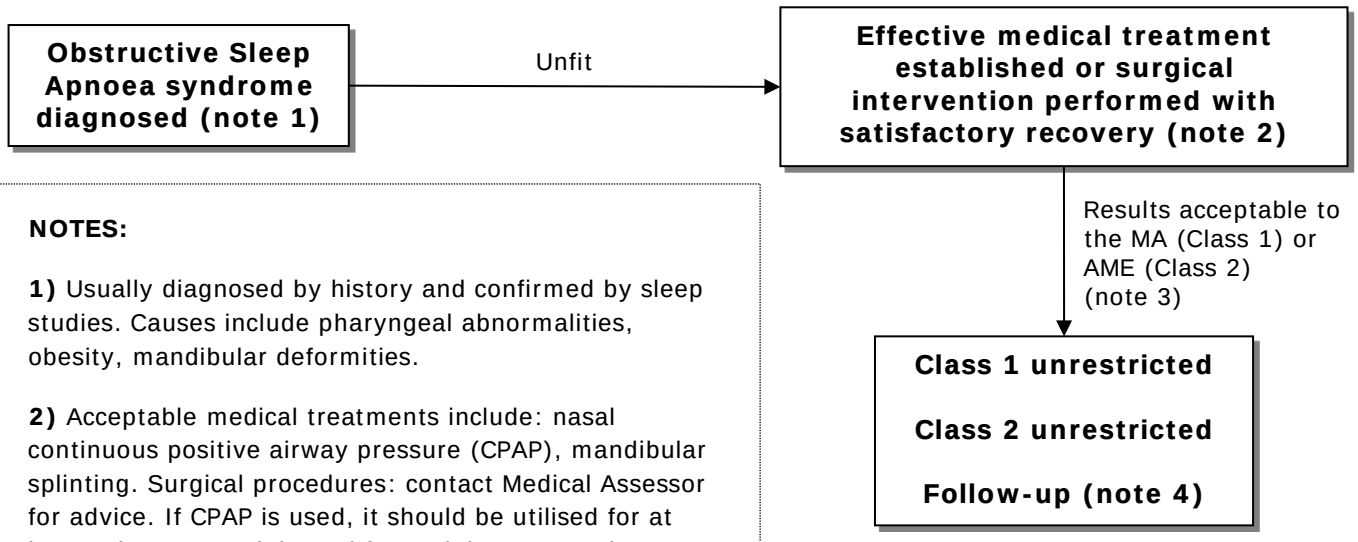
- 12 lead resting ECG;
- 24 hour ECG
- Echocardiogram

Any cardiac symptoms or investigation abnormality will require further evaluation to include cardiac MRI. Evidence of cardiac sarcoidosis likely to cause incapacitation will disqualify.

4) class 1 follow-up should be 6 monthly for 2 years then annually. Class 2 follow up should be annual. Review to include Chest Xray if clinically indicated, pulmonary function tests, resting ECG and 24hr ECG. Remains fit if <10%/yr fall in FVC or <15%/yr fall in gas transfer factor (no lower than 70% of predicted). Other tests may be indicated. Follow up may cease with resolution of disease and at the discretion of the Medical Assessor.

5) A previous history of systemic involvement includes: skin (except erythema nodosum), bone, eye, heart, central nervous system and lung parenchyma.

Flowchart – Obstructive sleep apnoea syndrome certification



NOTES:

1) Usually diagnosed by history and confirmed by sleep studies. Causes include pharyngeal abnormalities, obesity, mandibular deformities.

2) Acceptable medical treatments include: nasal continuous positive airway pressure (CPAP), mandibular splinting. Surgical procedures: contact Medical Assessor for advice. If CPAP is used, it should be utilised for at least 5 hours per night and for 6 nights per week. It must be used during the sleep period just prior to flight. Full benefit from CPAP usually takes 6 weeks of use. The machine usage report should be assessed by the Medical Assessor (Class 1) or AME (Class 2) with any clinical reports. Applicants with excess cardiovascular risk shall undergo cardiological evaluation.

3) Epworth Sleepiness Scale score should be less than 10. In cases of doubt, a Multiple Sleep Latency Test should be performed.

4) Pilots are not to fly if they experience any problems with their treatment or experience a recurrence of their symptoms and/or an Epworth Sleepiness Scale score is greater than or equal to 10. If CPAP is used, the machine usage report should be submitted to the AME (initially every 3 months for the first year) together with copies of your flying logbook for the same period to demonstrate compliance with (2) above.

EPWORTH SLEEPINESS SCALE

Use the following scale to choose the most appropriate number for each situation: 0 = would *never* dose or sleep, 1 = *slight* chance of dozing or sleeping, 2 = *moderate* chance of dozing or sleeping, 3 = *high* chance of dozing or sleeping.

Situation	**Chance of dozing or sleeping**
Sitting and reading	
Watching TV	
Sitting inactive in a public place	
Being a passenger in a motor vehicle for an hour or more	
Lying down in the afternoon	
Sitting and talking to someone	
Sitting quietly after lunch (no alcohol)	
Stopped for a few minutes in traffic while driving	
Total score (add the scores up)	

MED.B.020 – Spijsverteringsstelsel

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
(a) Aanvragers mogen geen functionele of structurele ziekte van het maagdarmkanaal of de bijbehorende organen hebben die de veilige uitoefening van de rechten verbonden aan de toepasselijke vergunning(en) waarschijnlijk verstoort. ***(b)*** Aanvragers met restverschijnselen van een ziekte of operatieve ingreep in enig deel van het spijsverteringskanaal of de bijbehorende organen die waarschijnlijk problemen bij het vliegen veroorzaken, in het bijzonder een obstructie vanwege strictuur of compressie, worden als ongeschikt beoordeeld. ***(c)*** Aanvragers moeten vrij zijn van herniae die symptomen zouden kunnen veroorzaken die leiden tot onvermogen om te vliegen.	**Class 1 & 2** ***(a)*** *Oesophageal varices* Applicants with oesophageal varices should be assessed as unfit.	Report specifications - General
(d) Aanvragers met stoornissen van het spijsverteringsstelsel waaronder: ***(1)*** terugkerende dyspeptische stoornis waarvoor medicatie nodig is;	**Class 1** ***(e)*** *Peptic ulceration* Applicants with peptic ulceration should be assessed as unfit pending full recovery and demonstrated healing. **Class 2** ***(e)*** *Peptic ulceration* Applicants with peptic ulceration should be assessed as unfit pending full recovery.	**Irritable bowel syndrome** Assessment by a consultant gastroenterologist is required to exclude other medical conditions such as inflammatory bowel disease. Underlying stress should be addressed. If symptoms persist, increased physical activity and dietary modification may be helpful. Symptom targeted medication may include antispasmodics, laxatives, antimotility medication and analgesics. Certification for class 1 or 2 is possible if symptoms are well controlled with acceptable medication. In intermittently symptomatic cases, an OML may be appropriate for class 1 certificate holders. **Diverticular disease** Peppermint oil is acceptable for aeromedical certification when symptoms are controlled. If broad spectrum antibiotics are prescribed the licence holder should be considered unfit until the course is completed and symptoms have settled. If there is evidence of bleeding or during episodes of diverticulitis the licence holder is unfit. If colectomy is required for severe complications or failure to respond to medical treatment, the licence holder will be unfit pending recovery. In intermittently symptomatic cases, an Operational Multipilot Limitation (OML) may be appropriate for class 1 certificate holders. **Peptic ulceration**

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
		Aeromedical certificate holders will be assessed unfit while undergoing H. pylori eradication therapy. Following successful eradication of H. pylori proton pump inhibitors and H2 receptor antagonists are acceptable for maintenance therapy. Report specifications - General
(2) pancreatitis;	**Class 1** ***(b)*** *Pancreatitis* Applicants with pancreatitis should be assessed as unfit pending assessment. A fit assessment may be considered if the cause (e.g. gallstone, other obstruction, medication) is removed. **Class 2** ***(b)*** *Pancreatitis* Applicants with pancreatitis should be assessed as unfit pending satisfactory recovery.	Report specifications - General
(3) symptomatische galstenen;	**Class 1** ***(c)*** *Gallstones* ***(1)*** Applicants with a single asymptomatic large gallstone discovered incidentally may be assessed as fit if not likely to cause incapacitation in flight. ***(2)*** An applicant with asymptomatic multiple gallstones may be assessed as fit with a multi-pilot limitation. **Class 2** ***(c)*** *Gallstones* ***(1)*** Applicants with a single asymptomatic large gallstone or asymptomatic multiple gallstones may be assessed as fit. ***(2)*** Applicant with symptomatic single or multiple gallstones should be assessed as unfit. A fit assessment may be considered following gallstone removal.	
(4) een vastgestelde diagnose of geschiedenis van een chronische darmontsteking;	**Class 1** ***(d)*** *Inflammatory bowel disease* Applicants with an established diagnosis or history of chronic inflammatory bowel disease should be assessed as fit if the inflammatory bowel disease is in established remission and stable and that systemic steroids are not required for its control. **Class 2** ***(d)*** *Inflammatory bowel disease* Applicants with an established diagnosis or history of chronic inflammatory bowel disease may be assessed as fit provided that the disease is stable and not likely	**Inflammatory Bowel Disease** An aeromedical certificate holder with inflammatory bowel disease is assessed unfit unless the condition is in remission. For class 1 the pilot must have been in remission on minimal medication for six months for aeromedical certification. Initially this will be with an Operational Multipilot Limitation (OML). This limitation can be reviewed after a further 6 months of remission. The applicant should be warned of the risk of significant interruptions in their ability to exercise licence privileges if their condition relapses.

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
	to interfere with the safe exercise of the privileges of the applicable licence(s).	Report specifications - General
(5) na operatie aan het spijsverteringskanaal of de bijbehorende organen, waaronder operaties die algehele of gedeeltelijke excisie of een verlegging van een van deze organen inhouden;	**Class 1** ***(f)*** *Abdominal surgery* ***(1)*** Abdominal surgery is disqualifying for a minimum of 3 months. An earlier fit assessment may be considered if recovery is complete, the applicant is asymptomatic and there is only a minimal risk of secondary complication or recurrence. ***(2)*** Applicants who have undergone a surgical operation on the digestive tract or its adnexa, involving a total or partial excision or a diversion of any of these organs, should be assessed as unfit for a minimum period of 3 months or until such time as the effects of the operation are no longer likely to interfere with the safe exercise of the privileges of the applicable licence(s). **Class 2** ***(f)*** *Abdominal surgery* ***(1)*** Abdominal surgery is disqualifying. A fit assessment may be considered if recovery is complete, the applicant is asymptomatic and there is only a minimal risk of secondary complication or recurrence. ***(2)*** Applicants, who have undergone a surgical operation on the digestive tract or its adnexa, involving a total or partial excision or a diversion of any of these organs, should be assessed as unfit until such time as the effects of the operation are no longer likely to interfere with the safe exercise of the privileges of the applicable licence(s).	Report specifications - General
worden als ongeschikt beoordeeld. Een beoordeling van geschiktheid kan worden overwogen na succesvolle behandeling of volledig herstel na operatie en behoudens een bevredigende maag-darmevaulatie.		
(e) Luchtvaartmedische beoordeling: ***(1)*** aanvragers van een medisch certificaat klasse 1 met de diagnose van de aandoeningen die in punt ***(2)***, ***(4)*** en ***(5)*** worden gespecificeerd, worden doorverwezen naar de autoriteit die het bewijs van bevoegdheid afgeeft; ***(2)*** de geschiktheid van klasse 2-aanvragers met pancreatitis wordt bepaald in overleg met de autoriteit die het bewijs van bevoegdheid afgeeft.		

Report specifications - General

The following subheadings are for guidance purposes only and should not be taken as an exhaustive list.

1. **Diagnoses**

2. **History**
   - Presenting symptoms
   - Nature of condition, circumstances surrounding onset, precipitating factors
   - Other relevant medical history

3. **Examination and Investigation Findings**
   - Clinical findings
   - Impairment or loss of function

4. **Investigation findings**
   - Blood test results (Urea & Electrolytes, liver function tests including GGT, Thyroid function tests, full blood count)
   - Radiology imaging reports (e.g. x-ray, ultrasound, CT, MRI)
   - Histology reports
   - Other procedures and investigation reports

5. **Treatment**
   - Recent, past and ongoing treatment must be detailed
   - Current and recent past medication (dose, frequency, start date and finish date)
   - Confirmation no side effects from medication
   - Surgical reports

6. **Follow up and further investigations/referrals planned or recommended**
   - Anticipated follow up/frequency of clinical reviews and investigations
   - Prognosis and risk of recurrence
   - Confirmation of full recovery or remission on maintenance dose of acceptable medication and well controlled at date of report

7. **Clinical Implications**
   - Any concerns regarding disease progression, treatment compliance or risk of sudden incapacity

MED.B.025 – Metabolische en endocriene stelsels

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
(a) Aanvragers mogen geen functionele of structurele metabolische, endocriene of voedingsstoornis hebben die de veilige uitoefening van de rechten verbonden aan de toepasselijke vergunning(en) waarschijnlijk verstoort. ***(b)*** Aanvragers met metabolische, endocriene of voedingsdisfunctie kunnen als geschikt worden beoordeeld mits de stabiliteit van de aandoening is aangetoond en een vliegmedische evaluatie een bevredigend resultaat heeft opgeleverd.	**Class 1** ***(a)*** *Metabolic, nutritional or endocrine dysfunction* Applicants with metabolic, nutritional or endocrine dysfunction should be assessed as fit if the condition is asymptomatic, clinically compensated and stable with or without replacement therapy, and regularly reviewed by an appropriate specialist. **Class 2** ***(a)*** *Metabolic, nutritional or endocrine dysfunction* Metabolic, nutritional or endocrine dysfunction is disqualifying. A fit assessment may be considered if the condition is asymptomatic, clinically compensated and stable. **Class 1** ***(b)*** *Obesity* Applicants with a Body Mass Index ≥35 may be assessed as fit only if the excess weight is not likely to interfere with the safe exercise of the applicable licence(s) and a satisfactory cardiovascular risk review has been undertaken. **Class 2** ***(b)*** *Obesity* Obese applicants may be assessed as fit only if the excess weight is not likely to interfere with the safe exercise of the applicable licence(s). **Class 1** ***(c)*** *Addison's disease* Addison's disease is disqualifying. A fit assessment may be considered, provided that cortisone is carried and available for use whilst exercising the privileges of the licence. Applicants may be assessed as fit with a multi-pilot limitation. **Class 2** ***(c)*** *Addison's disease* Applicants with Addison's disease may be assessed as fit provided that cortisone is carried and available for use whilst exercising the privileges of the licence. **Class 1** ***(d)*** *Gout* Applicants with acute gout should be assessed as unfit. A fit assessment may be considered once asymptomatic, after cessation of treatment or the condition is stabilised on anti-hyperuricaemic therapy.	**Benign Pituitary Tumours class 1 and 2** Applicants with symptoms and/or on first diagnosis should be assessed as unfit. A fit assessment can be considered subject to a satisfactory endocrinologist's report and visual fields assessment after 3 months of being stable on treatment. Annual follow-up with endocrinology report and visual fields is required. **Cabergoline** is used for the treatment of microprolactinomas. It is acceptable for any class of certification, providing the pilot has been stabilised on this medication for a period of not less than three months on the ground and has no adverse side-effects from the therapy. **Obesity class 1 and 2** Information - Obesity and medical certification Flowchart – Obesity certification The Medical Flight Test Form is included as an attachment to this document.

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
	Class 2 ***(d)*** *Gout* Applicants with acute gout should be assessed as unfit until asymptomatic.	
	Class 1 ***(e)*** *Thyroid dysfunction* Applicants with hyperthyroidism or hypothyroidism should be assessed as unfit. A fit assessment may be considered when a stable euthyroid state is attained.	Information – Thyroid dysfunction certification
	Class 2 ***(e)*** *Thyroid dysfunction* Applicants with thyroid disease may be assessed as fit once a stable euthyroid state is attained.	
	Class 1 ***(f)*** *Abnormal glucose metabolism* Glycosuria and abnormal blood glucose levels require investigation. A fit assessment may be considered if normal glucose tolerance is demonstrated (low renal threshold) or impaired glucose tolerance without diabetic pathology is fully controlled by diet and regularly reviewed.	**Abnormal Glucose Metabolism class 1 and 2** Glycosuria should always be investigated with a minimum of random blood sugar. Symptomatic individuals should have an oral glucose tolerance test. Class 1 applicants with impaired glucose tolerance should be reviewed annually.
	Class 2 ***(f)*** *Abnormal glucose metabolism* Metabolic, nutritional or endocrine dysfunction is disqualifying. A fit assessment may be considered if the condition is asymptomatic, clinically compensated and stable.	
(c) *Diabetes mellitus* ***(1)*** Aanvragers met diabetes mellitus die insuline nodig hebben, worden als ongeschikt beoordeeld. ***(2)*** Aanvragers met diabetes mellitus die geen insuline nodig hebben, worden als ongeschikt beoordeeld tenzij kan worden aangetoond dat de bloedsuikerspiegel onder controle is.	**Class 1** ***(g)*** *Diabetes mellitus* Subject to good control of blood sugar with no hypoglycaemic episodes: ***(1)*** applicants with diabetes mellitus not requiring medication may be assessed as fit; ***(2)*** the use of antidiabetic medications that are not likely to cause hypoglycaemia may be acceptable for a fit assessment with a multi-pilot limitation.	Information – Diabetes certification Report specifications – Diabetes
	Class 2 ***(g)*** *Diabetes mellitus* Applicants with diabetes mellitus may be assessed as fit. The use of anti-diabetic medications that are not likely to cause hypoglycaemia may be acceptable.	
(d) Luchtvaartmedische beoordeling: ***(1)*** Aanvragers van een medisch certificaat klasse 1 die voor bloedsuikerbeheersing andere medicatie		

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
nodig hebben dan insuline worden doorverwezen naar de autoriteit die het bewijs van bevoegdheid afgeeft; ***(2)*** De geschiktheid van klasse 2-aanvragers die voor de bloedsuikerbeheersing andere medicatie nodig hebben dan insuline wordt beoordeeld in overleg met de autoriteit die het bewijs van bevoegdheid afgeeft.		

Information - Obesity and medical certification

Obesity is defined as a body mass index (BMI) in excess of 30 by the 'Nederlands Huisartsen Genootschap' (NHG). The NHG guidelines regarding BMI can be found in the NHG-Standaard Obesitas. The BMI is calculated by dividing the person's mass in kilograms by the square of his height in metres. A BMI calculator can be found here. Obesity substantially increases the risk of acute and chronic medical conditions summarised below:

Risks of health problems associated with obesity

Greatly increased risk	Moderately increased risk	Slightly increased risk
Type 2 diabetes	Coronary heart disease	Some cancers
Insulin resistance	Hypertension	Reproductive hormone abnormality
Gallbladder disease	Stroke	Impaired fertility
Dyslipidaemia	Osteoarthritis	Polycystic ovary disease
Breathlessness	Hyperuricaemia (gout)	Low back pain
Sleep apnoea	Psychological factors	Anaesthetic risk

Treatment that affects medical certification

Medication which reduces the absorption of dietary fat, when combined with a change in lifestyle, can be used to treat obesity in individuals with a BMI in excess of 30 or 28 if other risk factors such as hypertension, diabetes or high cholesterol are present. Although sometimes available over-the-counter all treatments should be discussed with your GP or AME. If you do commence treatment you must notify your AME and ground yourself for two weeks to ensure you have no adverse effects from the medication. Side-effects might include flatulence, oily or leaky stools, abdominal pain and bloating, headaches and anxiety.

Appetite suppressants are disqualifying for medical certification and are not recommended for the treatment of obesity.

Surgery

Bariatric surgery promotes weight loss by altering the anatomy of the digestive system and limiting the amount of food that can be eaten and digested, for example by a gastric bypass or gastric banding. It is a major procedure that is usually considered as an option if individual's BMI is 40 or more, or between 35 and 40 if other risk factors that could be improved by a reduction in weight are present. Other criteria also need to be fulfilled and this option should be discussed with your AME. If it is deemed acceptable for treatment for you and you decide to proceed, you must notify your AME as you will be assessed as unfit for a period of up to 3 months post surgery which will be dependent upon the type of procedure performed and your recovery. Endoscopic procedures will significantly reduce this period. Detailed reports will be required to confirm that you have made a full recovery from the procedure, are not experiencing any incapacitating side-effects, and a final assessment with your AME will be required before you can be assessed as 'fit' again. Any other treatment or procedure that you might be considering must be discussed with your AME.

Aeromedical considerations

Beside the potential impact to your health, the nature of your operating environment in relation to your BMI should also be considered.

A Medical Flight Test may be required to ensure that you can safely complete your checks, and have full and free movement to reach all switches and controls without any impedance. You will also need to demonstrate that you can sagely and quickly prepare and evacuate the aircraft in case of an emergency. Separate tests may be required if you fly substantially different types of aircraft e.g. a commercial pilot who also undertakes private flying.

Pilots or light aircraft are reminded that crew (and passenger) weights are important factors for aircraft performance and centre of gravity, and that accurate weights should be measured before flight.

Regulatory requirements

Initial applicants for a medical certificate issue will be referred for further assessment if their BMI is 35 or above. Existing pilots whose BMI exceeds 35 require investigation within 2 months.

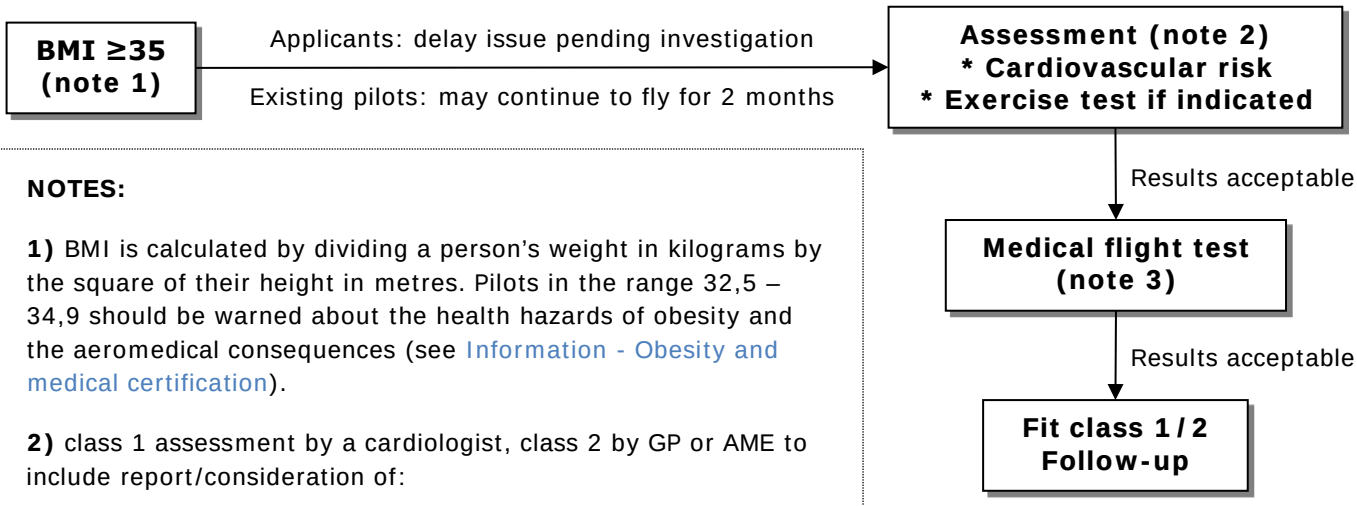
- Assessment
    - Medical history & risk factors to include, BMI, waist & neck circumference, lipid profile, blood glucose, urinalysis, blood pressure, Epworth score
    - Class 1: Review by cardiologist to include annual exercise test
    - Class 2/LAPL: AME or GP to investigate include cardiovascular risk score. If risk above 20% in 10 years an exercise ECG is likely to be indicated.

- Medical Flight Test (form is included as an attachment to this document.)

    - For class 1 by TRE, Training Captain, or FI(E)
    - For class 2 or LAPL by CFI or FI(E)

If acceptable, further reviews with either your AME or GP will be required 6 monthly until the BMI falls below 35. Class 1 pilots will require an annual cardiological review to include exercise test. If the BMI increased by 2,5 points since the last medical flight test, the test shall be repeated.

Flowchart – Obesity certification



NOTES:

1) BMI is calculated by dividing a person's weight in kilograms by the square of their height in metres. Pilots in the range 32,5 – 34,9 should be warned about the health hazards of obesity and the aeromedical consequences (see Information - Obesity and medical certification).

2) class 1 assessment by a cardiologist, class 2 by GP or AME to include report/consideration of:

- Medical history including lifestyle factors
- BMI
- Waist and neck circumference
- Lipid profile
- Blood sugar
- Urinalysis
- Blood pressure
- Epworth score

Cardiovascular risk score should be calculated using appropriate tools, and an annual exercise test performed if risk exceeds 20% in next 10 years.

Pilot must notify AME or referral for investigation and/or treatment.

3) Medical Flight Test Form is available as attachment in this document.
Class 1 with a training Captain or FI(E)
Class 2 with a CFI or FI(E)

4) Follow-up review as above: 6 monthly class 1, annual class 2. If BMI increases by ≥2,5 then the Medical Flight test must be repeated.

Information – Thyroid dysfunction certification

1. Initial applicants with an established diagnosis of thyroid dysfunction will have the issue of their medical certificate referred until acceptable reports have been received. On diagnosis of thyroid dysfunction a certificate holder shall be assessed as unfit.

2. A report from an endocrinologist or GP will be required to confirm details of history, investigations, diagnosis and treatment, optimised thyroid function, no side-effects from either the disorder or the treatment and plans for follow-up care.

- **Hypothyroidism**

Any changes in management, including medication changes, must be notified to the AME. If the certificate holder is asymptomatic then no grounding period will be required for minor (up to 25mcg) changes in dose of thyroxine. If any symptoms are present then the certificate holder will be assessed as unfit until symptom free.

- **Hyperthyroidism**
    - Anti-thyroid drugs in the absence if side-effects are not disqualifying
    - Class 1 certificate holders will undergo review with an ophthalmic to ensure satisfactory eye movements and no diplopia. If normal, a fit assessment can be made by the AME, otherwise review by the Medical Assessor will be required. An OML may be required.
    - Class 2 holders will undergo review with an AME to ensure satisfactory eye movements and no diplopia.

3. Reports as detailed above will be submitted to the AME for review only in the initial phases of the disease.

4. All changes in management will be notified to an AME and the certificate holder will be assessed as unfit until clinically euthyroid and a satisfactory report has been received.

Thyroidectomy

Following thyroid surgery (complete or partial) the certificate holder will be assessed as unfit. A fit assessment can be made following full surgical recovery, and demonstrated stability of thyroid function.

A report from the specialist will be required confirming details of the surgery, recovery and ongoing treatment and confirmation of euthyroid state. Minimum follow up is annual blood test confirming euthyroid status.

Radioactive iodine treatment

The certificate holder will be assessed as unfit until all treatment is complete and a euthyroid state has been achieved. A report from the specialist will be required and should confirm details of treatment and follow-up care including confirmation of euthyroid state. Minimum follow up is for an annual blood test confirming euthyroid status.

Information – Diabetes certification

All potentially hypoglycaemic treatment is disqualifying. This includes all insulins, sulphonylureas and glinides.

Applicants with non-hypoglycaemic treatment (includes glitazones, gliptins, incretin mimetics, biguanides, alphaglucosidase inhibitors) can be certified with an OML limitation for class 1 and unrestricted for class 2. Diet only treatment can be certified with unrestricted class 1 and 2.

Surveillance requirements

	Class 1	Class 2
Review of clinical reports, data logging of operational blood sugars and review of flying log	Annual AME	Annual AME
Reporting / review of symptoms	Mandatory	Mandatory
$HbA1_C$ frequency	Six-monthly	Annual
Renal & liver profiles lipids	Annual	Annual
Diabetology review including: • Symptom review • Cardiovascular status / risk • Nephropathy status • Neuropathy status • Opthalmic screening	Local specialist annual	Local GP or specialist annual
Cardiology review including exercise test	On diagnosis, then: <40 yrs two-yearly >40 yrs annual	If 10 yr cardiovascular risk >20% then annual if 10 yr risk remains >20%

Target ranges for clinical variables

Variable	Target	Review treatment (may need period of unfitness)	Unfit
$HbA1_C$	<8,5 % (<69 mmol/l)	8,5% – 10% (69 – 86 mmol/l)	>10% (>86 mmol/l)
Systolic BP	<140 mmHg	140 – 160 mmHg	>160 mmHg
Diastolic BP	<80 mmHg	80 – 95 mmHg	>95 mmHg
Cholesterol	4,0 – 4,5 mmol/l	>4,5 mmol/l	n/a
Triglycerides	<2,5 mmol/l	>2,5 mmol/l	n/a

Fitness / unfitness status

- Change of non-hypoglycaemic medication type or dose: 2 weeks unfit. Stability should be reviewed/confirmed by GP or AME.
- Episodes of severe hypoglycaemia must be reported and shall entail unfitness. Specialist review will be required before consideration of any resumption of flying.
- Development of any retinopathy requires ophthalmological assessment and is likely to result in further restriction or unfitness if there is any field loss or reduction in visual acuity.
- Presence of significant nephropathy significantly increases cardiovascular risk and is likely to entail unfitness.
- Non-declaration of symptoms, medical history or provision of incomplete testing records/flying logbook is likely to entail unfitness.

Report specifications – Diabetes

The following subheadings are for guidance purposes only and should not be taken as an exhaustive list.

1. **Diagnoses**
   - Type
   - Comorbidities

2. **History**
   - Presenting complaint and symptoms (including date of diagnosis)
   - Nature of condition, circumstances surrounding onset, precipitating factors
   - Number of severe hypoglycaemic episodes in past year
   - Loss of hypoglycaemic awareness
   - Other relevant medical history

3. **Examination and Investigation Findings**
   - Blood tests (as per Diabetes Certification guidance)
     - $HbA1_c$ and glucose
     - Liver and renal function (eGFR)
     - Lipids
   - Confirmation of stable blood sugars, correlated with symptom review
   - Screening for complications
     - Retinopathy (for class 1 by an ophthalmologist/specialist clinic)
     - Neuropathy
     - Nephropathy
   - Cardiovascular risk assessment confirming no evidence of cardiovascular disease
     - With consultant cardiologist to include an exercise tolerance test to the Bruce Protocol
     - Risk factors including family history, smoking, alcohol and weight
   - Blood pressure within acceptable parameters

4. **Treatment**
   - Recent, past and ongoing treatment must be detailed
   - Current and recent past medication (dose, frequency and start date)
   - Confirmation no side effects from medication

5. **Follow up and further investigations/referrals planned or recommended**
   - Anticipated follow up/frequency of clinical reviews and investigations
   - Confirmation of full recovery or remission on maintenance dose of acceptable medication and well controlled at date of report

6. **Clinical Implications**
   - Any concerns regarding disease progression, treatment compliance or risk of sudden incapacity

MED.B.030 – Hematologie

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
(a) Aanvragers mogen geen hematologische ziekte hebben die de veilige uitoefening van de rechten verbonden aan de toepasselijke bewijzen van bevoegdheid waarschijnlijk verstoort.		
(b) Voor een medisch certificaat klasse 1 wordt het hemoglobinegehalte getest bij elk onderzoek oor de verstrekking van een medisch certificaat.		Class 1 Haemoglobin should be measured at every medical with appropriately maintained and calibrated testing equipment. Abnormalities on near patient testing should be confirmed with a full blood count assessed in a haematology laboratory.
(c) Aanvragers met een hematologische aandoening, zoals: ***(1)*** trombotische, bloedings- of stollingsstoornis;	**Class 1** ***(e)*** *Coagulation disorders* Applicants with a coagulation disorder should be assessed as unfit. A fit assessment may be considered if there is no history of significant bleeding episodes. ***(f)*** *Haemorrhagic disorders* Applicants with a haemorrhagic disorder require investigation. A fit assessment with a multi-pilot limitation may be considered if there is no history of significant bleeding. **Class 2** ***(e)*** *Coagulation and haemorrhagic disorders* Applicants with a coagulation or haemorrhagic disorder may be assessed as fit if there is no likelihood of significant bleeding. **Class 1** ***(g)*** *Thrombo-embolic disorders* ***(1)*** Applicants with a thrombotic disorder require investigation. A fit assessment with a multi-pilot limitation may be considered if there is no history of significant clotting episodes. ***(2)*** An arterial embolus is disqualifying. **Class 2** ***(f)*** *Thrombo-embolic disorders* Applicants with a thrombotic disorder may be assessed as fit if there is no likelihood of significant clotting episodes. **Class 1** ***(h)*** *Disorders of the lymphatic system* Applicants with significant localised and generalised enlargement of the lymphatic glands and diseases of the blood should be assessed as unfit and	**Thrombocytopaenia** Applicants with a diagnosis of thrombocytopenia should be assessed as unfit. Medical certification is considered subject to a haematologist report acceptable to the Medical Assessor (for class 1 applicants) or AME who performed the periodic medical examination (Class 2). Platelet counts below 75 x 10^9/l should be assessed as unfit. **Haemophilias** Applicants with a diagnosis of Haemophilia A (factor VIII deficient) or Haemophilia B (Factor IX deficient, Christmas disease) should be assessed as unfit. Medical certification is considered for applicants with a diagnosis of very mild forms with >30% coagulation factor subject to a haematologist report acceptable to the Medical Assessor (Class 1) or an AME (Class 2). History of spontaneous bleeding is not acceptable for medical certification. **Von Willibrand disease** Applicants with a diagnosis of Von Willibrand disease should be assessed as unfit. Medical certification is considered subject to a haematologist report acceptable to the Medical Assessor (Class 1) or an AME (Class 2) confirming that the phenotype is mild, that there is no history of significant bleeding and that therapy is not required. **Aspirin** and **Clopidogrel** are acceptable anti-platelet medications. **Anagrelide** inhibits platelet formation. Applicants requiring this medication should be assessed as unfit. Medical

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
	require investigation. A fit assessment may be considered in cases of an acute infectious process which is fully recovered or Hodgkin's lymphoma or other lymphoid malignancy which has been treated and is in full remission. **Class 2** ***(g)*** *Disorders of the lymphatic system* Applicants with significant enlargement of the lymphatic glands or haematological disease may be assessed as fit if the condition is unlikely to interfere with the safe exercise of the privileges of the applicable licence(s). Applicants may be assessed as fit in cases of acute infectious process which is fully recovered or Hodgkin's lymphoma or other lymphoid malignancy which has been treated and is in full remission.	certification for class 1/OML can be considered by the Medical Assessor no sooner than 2 weeks after commencing this treatment, subject to a satisfactory haematologist's report to include comment on any side-effects. Thrombocytosis requires referral to the Medical Assessor. **Deep Venous Thrombosis (DVT), Pulmonary Embolism (PE) and use of Coumadin** Class 1 OML and class 2 unrestricted certification are possible provided that: **1.** The pilot has recovered from the underlying condition or the condition has been stabilised and does not in itself preclude flying. **2.** The total incapacitation risk of the medication, the condition for which anticoagulation is indicated and any other conditions is acceptable. Likely indications include: **DVT/PE:** Screening should have been undertaken for underlying causes, including coagulation abnormalities. DVT is likely to be the least problematic for certification; target INR is likely to be 1,8 - 2,5 (with an ideal 2,0 – 2,3). In all cases of pulmonary embolism follow-up reviews should be with a pulmonologist and reports should include relevant investigations. **Atrial fibrillation** may be associated with other risk factors, which usually means that the highest level of certification achievable will be class 2 OSL. Flowchart – Atrial fibrillation certification **Cardiac valve replacement** The target INR following valve replacement and other co-morbidities should be taken into account. Flowchart – Aortic valve replacement certification Prior to certification the INR should be demonstrated to be within the target range for 6 months (4 results at 2 monthly intervals) and 2 monthly laboratory testing should be continued on an ongoing basis. If the INR varies considerably within the target range on the initial readings, a longer period of surveillance may be required. Class 1 applicants will be required to measure their INR on a 'near patient' testing system 12 hours prior to flight

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
		and only fly if the INR is within the target range. The INR should be recorded in the Log Book. The Log Book should be reviewed at each medical certificate revalidation examination. **Disorders of the lymphatic system** Information – Malignancies of the immune system certification
(2) Chronische leukemie;	**Class 1** ***(i)*** *Leukaemia* ***(1)*** Applicants with acute leukaemia should be assessed as unfit. Once in established remission, applicants may be assessed as fit. ***(2)*** Applicants with chronic leukaemia should be assessed as unfit. After a period of demonstrated stability a fit assessment may be considered. ***(3)*** Applicants with a history of leukaemia should have no history of central nervous system involvement and no continuing side-effects from treatment of flight safety importance. Haemoglobin and platelet levels should be satisfactory. Regular follow-up is required. **Class 2** ***(h)*** *Leukaemia* ***(1)*** Applicants with acute leukaemia may be assessed as fit once in established remission. **(2)** Applicants with chronic leukaemia may be assessed as fit after a period of demonstrated stability. ***(3)*** In cases ***(1)*** and ***(2)*** above there should be no history of central nervous system involvement and no continuing side-effects from treatment of flight safety importance. Haemoglobin and platelet levels should be satisfactory. A regular follow-up is required. **Class 1** ***(j)*** *Splenomegaly* Applicants with splenomegaly should be assessed as unfit and require investigation. A fit assessment may be considered when the enlargement is minimal, stable and no associated pathology is demonstrated, or if the enlargement is minimal and associated with another acceptable condition. **Class 2** ***(i)*** *Splenomegaly* Applicants with splenomegaly may be assessed as fit if the enlargement is minimal, stable and no associated pathology is demonstrated or if the enlargement is minimal and associated with another acceptable condition.	

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
kunnen als geschikt worden beoordeeld mits een vliegmedische evaluatie een bevredigend resultaat heeft opgeleverd.		
(d) Luchtvaartmedische beoordeling: ***(1)*** aanvragers van een medisch certificaat klasse 1 met een van de aandoeningen die onder ***(c)*** hierboven worden gespecificeerd, worden doorverwezen naar de autoriteit die het bewijs van bevoegdheid afgeeft; ***(2)*** de geschiktheid van klasse 2-aanvragers met een van de aandoeningen die onder ***(c)*** hierboven worden gespecificeerd, wordt bepaald in overleg met de autoriteit die het bewijs van bevoegdheid afgeeft.		
(e) Klasse 1-aanvragers met een van de hematologische aandoeningen die hieronder worden gespecificeerd, worden doorverwezen naar de vergunningverlenende autoriteit: ***(1)*** abnormale hemoglobine, waaronder, maar niet beperkt tot anemie, polycythemie of hemoglobinopathie; ***(2)*** significante vergroting van lymfeklieren; ***(3)*** vergroting van de milt.	**Class 1** ***(a)*** *Abnormal haemoglobin* Applicants with abnormal haemoglobin shall be investigated. **Class 2** ***(a)*** *Abnormal haemoglobin* Haemoglobin should be tested when clinically indicated. **Class 1** ***(b)*** *Anaemia* ***(1)*** Applicants with anaemia demonstrated by a reduced haemoglobin level or haematocrit less than 32% should be assessed as unfit and require investigation. A fit assessment may be considered in cases where the primary cause has been treated (e.g. iron or B12 deficiency) and the haemoglobin or haematocrit has stabilised at a satisfactory level. ***(2)*** Anaemia which is unamenable to treatment is disqualifying. **Class 2** ***(b)*** *Anaemia* Applicants with anaemia demonstrated by a reduced haemoglobin level or low haematocrit may be assessed as fit once the primary cause has been treated and the haemoglobin or haematocrit has stabilised at a satisfactory level. **Class 1** ***(c)*** *Polycythaemia* Applicants with polycythaemia should be assessed as unfit and require investigation. A fit assessment with a multi-pilot limitation may be considered	**Abnormal Haemoglobin** **Male** Hb result (in mmol/l) — Outcome <7,45 — Investigation required <7,14 — Unfit >11,2 — Ht to exclude polycythaemia **Female** Hb result (in mmol/l) — Outcome <6,8 — Investigation required <6,5 — Unfit >11,2 — Ht to exclude polycythaemia **Haemachromatosis** An applicant with a diagnosis of Haemachromatosis should be assessed as unfit. Unrestricted medical certification can be considered by the Medical Assessor (Class 1) or AME who performed the periodic medical examination (Class 2), once treatment is stabilised, on receipt of acceptable medical reports to include a haematology report. Applicant should have normal serum Ferritin following treatment, normal echocardiogram, Holter and Exercise ECG. Follow up reports generated by the applicant's treating haematologist should be copied to the AME who performed the periodic medical examination. Applicants should not fly within 48 hr of having venesection as treatment.

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
	if the condition is stable and no associated pathology is demonstrated. **Class 2** ***(c)*** *Polycythaemia* Applicants with polycythaemia may be assessed as fit if the condition is stable and no associated pathology is demonstrated. **Class 1** ***(d)*** *Haemoglobinopathy* ***(1)*** Applicants with a haemoglobinopathy should be assessed as unfit. A fit assessment may be considered where minor thalassaemia or other haemoglobinopathy is diagnosed without a history of crises and where full functional capability is demonstrated. The haemoglobin level should be satisfactory. ***(2)*** Applicants with sickle cell disease shall be assessed as unfit. **Class 2** ***(d)*** *Haemoglobinopathy* Applicants with a haemoglobinopathy may be assessed as fit if minor thalassaemia or other haemoglobinopathy is diagnosed without a history of crises and where full functional capability is demonstrated.	**Haemoglobinopathy** Applicants with thalassaemia trait may be assessed as acceptable for unrestricted certification subject to the receipt of a haematology report. Applicants with sickle cell trait may be assessed as acceptable for unrestricted certification.

Information – Malignancies of the immune system certification

- All class 1 assessments shall be referred to the Medical Assessor.
- Class 2 assessments may be referred to the Medical Assessor by the AME. For class two certification:
    - Fitness for class 1 OML is considered equivalent to unrestricted class 2 certification.
    - Class 2 certification with an Operational Safety pilot Limitation (OSL) is possible for all tumour types of the immune system provided the overriding prerequisites for certification have been satisfied.

Introduction

The assessment of an individual's fitness to fly after treatment for a malignancy of the immune system is complex as such tumours are a heterogeneous group and vary markedly in terms of clinical patterns of spread, response to treatment, sites of relapse and prognosis. There are more than 25 diseases classified as lymphoid malignancies in the current World Health Organization classification.

Modern classification of malignancies involving the immune system (according to the World Health Organisation)

Precursor cell Lymphoma

- Lymphoblastic lymphoma
    - T-cell
    - B-cell

Peripheral B-cell Neoplasms

- B-chronic lymphocytic leukaemia/small lymphocytic lymphoma
- B prolymphocytic lymphoma
- Lymphoplasmacytic lymphoma
- Mantle cell lymphoma
- Follicular lymphoma
- Marginal zone B-cell lymphoma
    - Extranodal (MALT)
    - Nodal
- Hairy cell leukaemia
- Diffuse large B-cell lymphoma
- Burkitt lymphoma and Burkitt-like lymphoma
- Plasmacytoma and myeloma

Peripheral T and NK Cell Neoplasms

- T prolymphocytic leukaemia
- T cell granular lymphocytic leukaemia
- Aggressive NK cell leukaemia
- Mycosis fungoides and Sezary syndrome
- Peripheral T-cell lymphoma not otherwise characterised
- Angioimmunoblastic T-cell lymphoma
- Extranodal NK/T cell lymphoma of nasal and nasal type
- Enteropathy-type T-cell lymphoma
- Hepatosplenic gamma delta T-cell lymphoma
- Subcutaneous panniculitis-like T-cell lymphoma
- Anaplastic large cell lymphoma (T/null cell)
    - Primary systemic type
    - Primary cutaneous type
- Adult T-cell lymphoma/leukaemia (HTLV1 positive)

Hodgkin's Lymphoma

Legend:
HTLV = Human T-cell Lymphoma/Leukaemia Virus 1
MALT = Mucosa-Associated Lymphoid Tissue
NK = Natural Killer

Prerequisites for certification

A detailed oncology report will be required and the following criteria should be satisfied before certification can be considered:

- Normally a minimum of 6 weeks since completion of radiotherapy. If radiotherapy has been given to the chest and cardiac tissue was included within the radiation field, cardiac evaluation should be satisfactory;
- Minimum of 2 months since completion of chemotherapy (excluding anthracyclines);
- Minimum of 6 months since completion of anthracycline chemotherapy, and cardiac evaluation should be satisfactory;
- Satisfactory haematological parameters Haemoglobin >7,45 mmol/l (male) or >7,14 mmol/l (female), Platelets >100.000/mm³, (or > 50.000 mm³ provided the trend is upwards and thrombocytopaenia is secondary to therapy and not disease), White Cell Count (WCC) > 3.000/mm³ and Neutrophils >1.000/mm³;
- In continuing clinical remission without symptoms of potential flight safety importance;
- No history of central nervous system involvement;
- No continuing side-effects from treatment;
- 6 monthly Full Blood Count (to include WCC and differential) and Biochemical Profile (to include Liver function tests) for 5 years then annually (exception - see group G below);
- Regular clinical follow up is being undertaken and satisfactory reports submitted to the Medical Assessor.

Certificatory assessment

Malignancies of the immune system, including lymphoid leukaemias, may be grouped according to potential for long-term complete remission ('cure') and prolonged relapse-free survival. All assessments are after treatment for primary disease except where specifically stated. A longer time period should normally elapse before returning to flying after treatment for relapse than is required after primary treatment.

The prognosis for some patients within a particular diagnostic category may be very different from the median and an assessment of prognostic factors can allow a more accurate prediction of the probability of relapse-free-survival, event-free-survival and overall survival. These probabilities will change with time as the clinical condition progresses. In addition transformation to a higher grade of lymphoma may occur. Relevant clinical information should be taken into account on a continuous basis when considering fitness for pilot certification.

The 'potential cure' for each group is an 'average' for the diagnoses listed. Within each group an individual may be assessed as having a better prognosis (good prognostic factors) or worse prognosis (adverse prognostic factors) than the 'average'. This may allow an earlier return to certification or delay the return to flying, according to individual circumstances. Relapses may present with an acute incapacitating event such as a retinal bleed, neuropathy, seizure or abdominal pain. However, it is more likely to be associated with symptoms such as fatigue, fever, sweats, headache, nausea, vomiting or diarrhoea. Any of these could adversely affect flight safety.

Certification following treatment for Lymphoid Malignancy

Group	Potential Cure Rates	Diagnosis	Minimum time to certification after completion of treatment	
			Class 1 OML Class 2 unrestricted	Class 1 unrestricted
A	>80%	MZ MALT (stage I/II) DLBC (stage I/II) ALCL (stage I/II) Solitary Plasmacytoma	Once pre-requisites satisfied	2 – 6 months (dependent on type of chemotherapy)
B	50%	Primary Mediastinal Lymphoma	6 months	2 years
C	30%	DLBC (stage III/IV)	1 year	2 years

Group	Potential Cure Rates	Diagnosis	Minimum time to certification after completion of treatment	
			Class 1 OML Class 2 unrestricted	Class 1 unrestricted
		ALCL (stage III/IV) including ALK negative MZ MALT (stage III/IV)		
D	30%	Burkitt's/Burkitt-like Lymphoma Pre-B Lymphoblastic Lymphoma/Leukaemia B-cell Lymphoblastic Lymphoma/Leukaemia Multiple myeloma (post BMT-csd)	2 years	3 years
E	10 – 20%	Pre-T ALL Pre-T LBL Mantle cell lymphoma (2 years symptom free)	2 years	3 years
F	<10% and moderately aggressive	Other Peripheral T-cell and NK Lymphoma/Leukaemia Adult T-cell Lymphoma (HTLV+) Mantle Cell Lymphoma Multiple Myeloma (Other) Subcutaneous panniculitis T-cell lymphoma	5 years (see text)	Not applicable
G	Considered incurable using current therapy but indolent	Follicular Lymphoma SLL B-cell CLL Lymphoplasmacytic Lymphoma T-cell Prolymphocytic Leukaemia T-cell Granular Lymphocytic Leukaemia Hairy Cell Leukaemia MZ B-cell Lymphoma (nodal/splenic)	See text	See text
H	A miscellaneous group with a generally good prognosis	Primary Cutaneous Lymphoma	Once wound healed	Once wound healed
I	Poor prognosis	Mycosis fungoides/Sezary syndrome	See text	See text
J	>60%	Hodgkin's lymphoma	6 months	2 years

Legend:
ALCL = Anaplastic Large Cell Lymphoma
ALK = Anaplastic Lymphoma Kinase
BMT-csd = Bone Marrow Transplantation – compatible sibling donor
CLL = Chronic Lymphocytic Leukaemia
DLBC = Diffuse Large B-cell Lymphoma
HTLV = Human T-cell Lymphoma/Leukaemia Virus 1
MZ = Marginal Zone Lymphoma
MALT = Mucosa-Associated Lymphoid Tissue
NK = Natural Killer
Pre-T ALL = Precursor T-cell Lymphoblastic Leukaemia
Pre-T LBL = Precursor T-cell Lymphoblastic Lymphoma
SLL = Small Lymphocytic (B-cell) Lymphoma

Group F

Most of these conditions have a very poor prognosis and relapse is common. However, in some, a durable remission may be achieved and individual consideration can be given to cases that have been in continuous remission for 3 years.

Group G

A remission of an indolent lymphoma may be complete or associated with the presence of small amounts of residual disease after treatment. Licence holders with a good partial remission (minor residual bone marrow involvement or a small amount of residual lymphadenopathy present on Computerised Tomography (CT) scan), which is not progressive, may be certificated. Persistent evidence of liver involvement or palpable enlargement of the spleen will disqualify.

Follicular Lymphoma

A monthly full blood count to include a differential white cell count and biochemical profile to include liver function tests is required. Six-monthly follow up is acceptable after 5 years complete remission.

a) Certification after primary treatment

This may be possible if the International Prognostic Index (IPI) is low and there is no evidence of progressive disease.

Class 1 OML at 3 months
Unrestricted at 1 year

Class 2 Unrestricted at 3 months

b) Certification after treatment for relapse

This may be possible if the relapse was only nodal, performance status was good and serum lactate dehydrogenase was normal at the time of relapse. Additionally for class 1, if the relapse occurred within 3 years of previous treatment, an OML will be applied to the licence. Thereafter unrestricted certification is only possible if sustained remission is achieved (more than 3 years).

Class 1 OML at 3 months
Unrestricted at 2 years (unless initial remission period <3 years)

Class 2 Unrestricted at 3 months

Chronic Lymphocytic Leukaemia/Small Lymphocytic (B-cell) Lymphoma

a) Stable stage A disease – not requiring treatment

Certification is possible as soon as the disease can be shown to be stable and non-progressive.

Class 1 Unrestricted at 3 months

Class 2 Unrestricted at 3 months

b) Certification after treatment

Treatment may be indicated for progressive Stage A (lymphocytosis alone or with a small amount of lymphadenopathy) or Stage B + (with substantial lymphadenopathy, splenomegaly, hepatomegaly or cytopaenias). If a good partial remission is achieved with treatment and there is no evidence of progressive disease, certification may be possible.

Class 1 OML at 3 months
Unrestricted at 1 year

Class 2 Unrestricted at 3 months

Marginal Zone B-cell Lymphoma (nodal/splenic)

Class 1 OML at 2 years
Unrestricted at 3 years

Class 2 OSL once pre-requisites for certification satisfied
Unrestricted at 2 years

Lymphoplasmacytic Lymphoma

Certification is not possible if the performance status is poor at presentation, if two or more cytopaenias are present or there is hepato/splenomegaly.

a) Stable early disease not requiring treatment
Certification is possible if there is low IPI at presentation and the disease can be shown to be stable and non-progressive.

Class 1 OML at 3 months
Unrestricted at 1 year

Class 2 Unrestricted at 3 months

b) Certification after primary treatment
Certification is possible for those who achieve a complete or good partial remission.

Class 1 OML at 6 months
Unrestricted at 2 years

Class 2 OSL once pre-requisites for certification satisfied
Unrestricted at 6 months

Hairy Cell Leukaemia

a) Stable early disease not requiring treatment

Class 1 OML at 3 months
Unrestricted at 1 year

Class 2 Unrestricted at 3 months

b) Certification after primary treatment
Certification is possible for those who achieve a complete or good partial remission following interferon therapy. A relapse less than 3 years after treatment and requirement for chemotherapy will disqualify.

Class 1 OML at 2 months
Unrestricted at 2 years

Class 2 OSL once pre-requisites for certification satisfied
Unrestricted at 2 years

Group H

Primary Cutaneous Lymphoma

When primary therapy or treatment for relapsing lymphoma only involving the skin has been completed, and at least a partial remission has been achieved with recovery from any complications of therapy, unrestricted class 1 certification is possible.

Group I

Sezary Syndrome and Mycosis Fungoides

This is characterised by involvement of the blood and bone marrow and in view of the poor prognosis requires more careful consideration. In those who achieve a stable, good partial remission following primary treatment certification may be considered.

Group J

Hodgkin's Lymphoma

The overall survival of patients with Hodgkin's Lymphoma depends on stage (10 year survival rate of 95% for stage IA, 60% for stage IV) and prognostic factors at presentation. Adverse prognostic factors include serum albumin <40 g/l, haemoglobin <6,5 mmol/l, <45 years, male, WCC >15,000/mm³, lymphocytes <600/mm³.

80% of relapses occur within the first 2-3 years after treatment. Relapses are extremely unlikely to present with symptoms that cause sudden incapacitation.

Substantial improvements in radiotherapy and combination chemotherapy during the late 20th century dramatically increased survival. The use of autologous stem cell transplantation has recently provided a further treatment option for relapse and approximately 50% will achieve prolonged survival using this method.

Long term follow up is important as radiotherapy and chemotherapy both result in an increased risk of second malignancy, either a solid tumour or a further lymphoid malignancy, beyond ten years after treatment. The relative risk is higher for younger patients as malignancy is uncommon in this age group.

Prolonged Long-Term Complete Remission

Unrestricted class 1 is possible for all tumour types of the immune system if a period of 5 years or more has elapsed since completion of treatment with no evidence of relapse of disease during this period.

Bone Marrow Transplantation

Fitness for recertification after bone marrow transplantation will be dependent on the individual circumstances. Lack of adverse prognostic features and the underlying diagnosis will be important and, in the case of allogenetic transplantation, the lack of continuing graft-versus-host disease or immunosuppression.

Autologous Stem Cell Transplantation:

Class 1 OML at 1 year after transplantation
Unrestricted at 2 years after transplantation

Class 2 Unrestricted at 1 year after transplantation

Allogeneic Transplantation:

Class 1 OML at 2 years after transplantation
Unrestricted at 3 years after transplantation

Class 2 OSL at 1 year afters transplantation
Unrestricted at 2 years after transplantation

Definitions

International Prognostic Index (IPI)

The IPI is the scoring system frequently used as a prognostic indicator for lymphoid malignancies. It takes the clinical features at presentation into account. The overall prognosis is related to the histological diagnosis (World Health Organization classification) and the IPI. A low score is 0-2, a high score is 3-5.

Prognostic factor	Score	Prognostic factor	Score
Age <60 years	0	Number of extranodal sites >2	1
Age >60 years	1	Performance status 0-1	0
Stage I-II	0	Performance status 2+	1
Stage III-IV	1		
Serum Lactate Dehydrogenase Low	0		
Serum Lactate Dehydrogenase High	1		

Number of extranodal sites <2	0		

Staging System

The accepted staging system is a modification of the Ann Arbor staging system.

Stage I 1 lymph node site involved;
Stage II 2 or more lymph node sites involved either above or below the diaphragm;
Stage III Nodel sites involved both above and below the diaphragm;
Stage IV Extranodal sites such as bone marrow, lung and liver involved in addition to the above.

When there is only a single localised extranodal site of involvement such as salivary gland, thyroid, orbit, testis, tonsil, stomach or cervix, the appropriate stage would be annotated with E 'Patients who present with weight loss or fever/sweats are classified as having B symptoms' (designated B).

Performance Status

0 Fully active
1 Ambulatory
2 Confined to bed/chair <50% of the daytime
3 Confined to bed/chair >50% of the daytime
4 Completely confined to bed/chair

MED.B.035 – Genito-urinaire stelsel

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
(a) Aanvragers mogen geen functionele of structurele ziekte van het renale of genito-urinaire stelsel of de bijbehorende organen hebben die de veilige uitoefening van de rechten verbonden aan het/de toepasselijke bewijs/bewijzen van bevoegdheid waarschijnlijk verstoort.		
(b) Urineanalyse moet deel uitmaken van ieder vliegmedisch onderzoek. De urine mag geen afwijkend element bevatten dat van pathologisch belang wordt geacht.	**Class 1** ***(a)*** *Abnormal urinalysis* Investigation is required if there is any abnormal finding on urinalysis.	**Haematuria** Please note revised terminology for haematuria: now called 'visible' and 'non-visible' (otherwise referred to as 'microscopic' or 'dipstick positive' haematuria). Urine dipstick of a freshly voided urine sample containing no preservative is considered a sensitive means of detecting the presence of haematuria. Routine microscopy for the confirmation of dipstick positive haematuria is not necessary. **Significant haematuria** is defined as: 1. Any single episode of visible haematuria 2. Any single episode of symptomatic non visible haematuria (in the absence of a urinary tract infection (UTI) or other transient cause) 3. Persistent asymptomatic non visible haematuria (in the absence of UTI or other transient cause). 'Persistent' is defined as: 2 out of 3 dipsticks positive for non visible haematuria. NB: Trace haematuria can be considered as negative although not in the presence of significant proteinuria (see below). **Proteinuria** Trace proteinuria is acceptable except in the presence of trace haematuria. When trace proteinuria and trace haematuria are both present, a repeat test is indicated. (Note: 24 hour protein collection for the assessment of proteinuria is no longer recommended). Urine protein: creatinine ratio (PCR) or albumin: creatinine ratio (ACR) is preferred. ACR has the greater sensitivity. **Significant proteinuria** is defined as: ACR >30 or PCR >50 Flowchart – Abnormal urinalysis certification

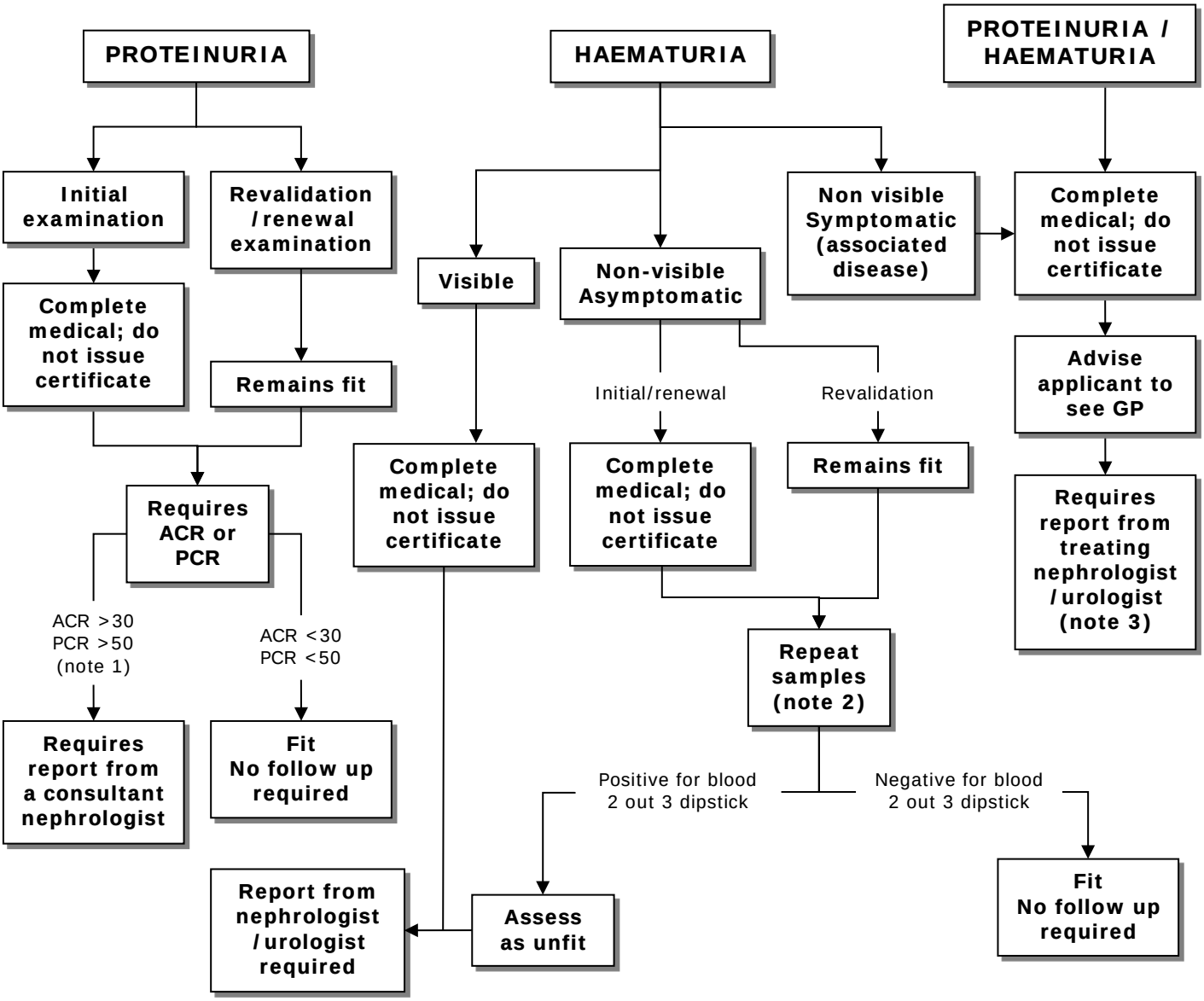
Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
(c) Aanvragers met enige restverschijnselen van ziekte of operatieve procedures aan de nieren of de urinewegen die waarschijnlijk problemen veroorzaakt, in het bijzonder een obstructie vanwege strictuur of compressie, worden als ongeschikt beoordeeld.		**IgA Nephropathy/Thin Basement Membrane Disease** Applicants are requested to submit an annual renal review to confirm blood pressure level and no evidence of proteinuria or impaired renal function. A creatinine clearance below 20ml/min is unacceptable for medical certification. If the review is acceptable, the applicant can be assessed as fit for unrestricted certification.
(d) Aanvragers met een genito-urinaire stoornis, zoals: ***(1)*** nierziekte;	**Class 1** ***(b)*** *Renal disease* Investigation is required if there is any abnormal finding on urinalysis. ***(1)*** Applicants presenting with any signs of renal disease should be assessed as unfit. A fit assessment may be considered if blood pressure is satisfactory and renal function is acceptable. ***(2)*** The requirement for dialysis is disqualifying. **Class 2** ***(a)*** *Renal disease* Applicants presenting renal disease may be assessed as fit if blood pressure is satisfactory and renal function is acceptable. The requirement for dialysis is disqualifying.	**Chronic Renal Disease** Applicants require regular renal review. In the absence of nephrotic syndrome and its associated thrombotic potential, and in the absence of uncontrolled hypertension, unrestricted certification may be permitted. A creatinine clearance below 20 ml/min is unacceptable for medical certification. An albumin level below 0,52mmol/l is also disqualifying. **Polycystic renal disease** The diagnosis of autosomal dominant polycystic kidney disease requires an OML for class 1 certificate holders. Berry aneurysms need to be excluded by means of Magnetic Resonance Angiography and cardiac valve disease (including aortic root dilatation) by means of an echocardiogram. Abdominal aortic aneurysm also needs to be excluded. **Acceptable treatment and medication erectile dysfunction** *Phosphodiesterase Type 5 (PDE5) inhibitors* The main aeromedical concerns are the side effect profile of these drugs which includes colour vision changes in the blue/green and purple spectrum and sudden hearing loss. **Generic name** / **NL trade name*** / **Minimum time between dose and flying** Sidenafil / Viagra / 12 hrs Vardenafil / Levitra / 12 hrs Tadalafil / Cialis / 36 hrs * Other trade names are used outside the Netherlands *Notes for pilots:* 1. You should discuss the appropriate dose with your GP/AME. 2. PDE5 inhibitors should never be taken in conjunction with any other medication without first discussing potential interactions with your GP/AME.

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
		3. Choose an extended off duty period to try the medication for the first time in case of side effects. 4. Side effects that are important for flying include changes in blood pressure, visual disturbance including a change in colour vision, headaches, musculoskeletal pain and a sustained erectile effect with the potential for distraction from the flying task. 5. You should not obtain this medication other than by prescription to ensure product quality. The contents of medication obtained in other ways, in particular over the internet, cannot be assured.
(2) een of meer urinestenen, of een geschiedenis van nierkoliek;	**Class 1** ***(b)*** *Urinary calculi* ***(1)*** Applicants with an asymptomatic calculus or a history of renal colic require investigation. ***(2)*** Applicants presenting with one or more urinary calculi should be assessed as unfit and require investigation. ***(3)*** A fit assessment with a multi-pilot limitation may be considered whilst awaiting assessment or treatment. ***(4)*** A fit assessment without multi-pilot limitation may be considered after successful treatment for a calculus. ***(5)*** With residual calculi, a fit assessment with a multi-pilot limitation may be considered. **Class 2** ***(b)*** *Urinary calculi* ***(1)*** Applicants presenting with one or more urinary calculi should be assessed as unfit. ***(2)*** Applicants with an asymptomatic calculus or history of renal colic require investigation. ***(3)*** While awaiting assessment or treatment, a fit assessment with a safety-pilot limitation may be considered. ***(4)*** After successful treatment the applicant may be assessed as fit. ***(5)*** For parenchymal residual calculi, the applicant may be assessed as fit.	Flowchart – Renal stones certification
kunnen als geschikt worden beoordeeld mits een renale/urologische evaluatie een bevredigend resultaat oplevert.		
(e) Aanvragers die een grote operatie aan het urinewegstelsel	**Class 1** ***(d)*** *Renal/urological surgery*	**Renal Transplant** Applicants who have undergone a renal

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
hebben ondergaan die algehele of gedeeltelijke excisie of een verlegging van een van deze organen inhoudt, worden als ongeschikt beoordeeld en moeten na volledig herstel opnieuw worden onderzocht alvorens een beoordeling van geschiktheid kan worden overwegen. Aanvragers van een medisch certificaat klasse 1 worden doorverwezen naar de bewijs van bevoegdheidverlenende autoriteit voor een nieuwe beoordeling.	***(1)*** Applicants who have undergone a major surgical operation on the urinary tract or the urinary apparatus involving a total or partial excision or a diversion of any of its organs should be assessed as unfit for a minimum period of three months or until such time as the effects of the operation are no longer likely to cause incapacity in flight. After other urological surgery, a fit assessment may be considered if the applicant is completely asymptomatic and there is minimal risk of secondary complication or recurrence. ***(2)*** An applicant with compensated nephrectomy without hypertension or uraemia may be considered for a fit assessment. ***(3)*** Applicants who have undergone renal transplantation may be considered for a fit assessment if it is fully compensated and tolerated with only minimal immuno-suppressive therapy after at least 12 months. Applicants may be assessed as fit with a multi-pilot limitation. ***(4)*** Applicants who have undergone total cystectomy may be considered for a fit assessment if there is satisfactory urinary function, no infection and no recurrence of primary pathology. Applicants may be assessed as fit with a multi-pilot limitation. **Class 2** ***(c)*** *Renal/urological surgery* ***(1)*** Applicants who have undergone a major surgical operation on the urinary tract or the urinary apparatus involving a total or partial excision or a diversion of any of its organs should be assessed as unfit until such time as the effects of the operation are no longer likely to cause incapacity in flight. After other urological surgery, a fit assessment may be considered if the applicant is completely asymptomatic and there is minimal risk of secondary complication or recurrence presenting with renal disease may be assessed as fit if blood pressure is satisfactory and renal function is acceptable. The requirement for dialysis is disqualifying. ***(2)*** An applicant with compensated nephrectomy without hypertension or uraemia may be considered fit. ***(3)*** Renal transplantation may be considered if it is fully compensated and tolerated with only minimal immuno-suppressive therapy after at least 12 months.	transplant are assessed as unfit. Medical certification can be considered 12 months post transplant. Renal function must be stable with no underlying systemic disorder that is likely to cause sudden change and blood pressure must be within normal limits. The use of approved anti-hypertensive drugs is permitted. Any steroid dosage must be below 10mg/day. Levels of anti-rejection drugs must be within therapeutic range to minimize side effects. Cardiovascular risk must be assessed by a cardiologist to include an exercise (stress) ECG. To maintain certification, applicants are required to provide a regular annual renal report. Class 1 holders also require an annual cardiology assessment, including an exercise ECG. Class 1 certificates will be restricted with OML.

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
	(4) Total cystectomy may be considered if there is satisfactory urinary function, no infection and no recurrence of primary pathology.	

Flowchart – Abnormal urinalysis certification



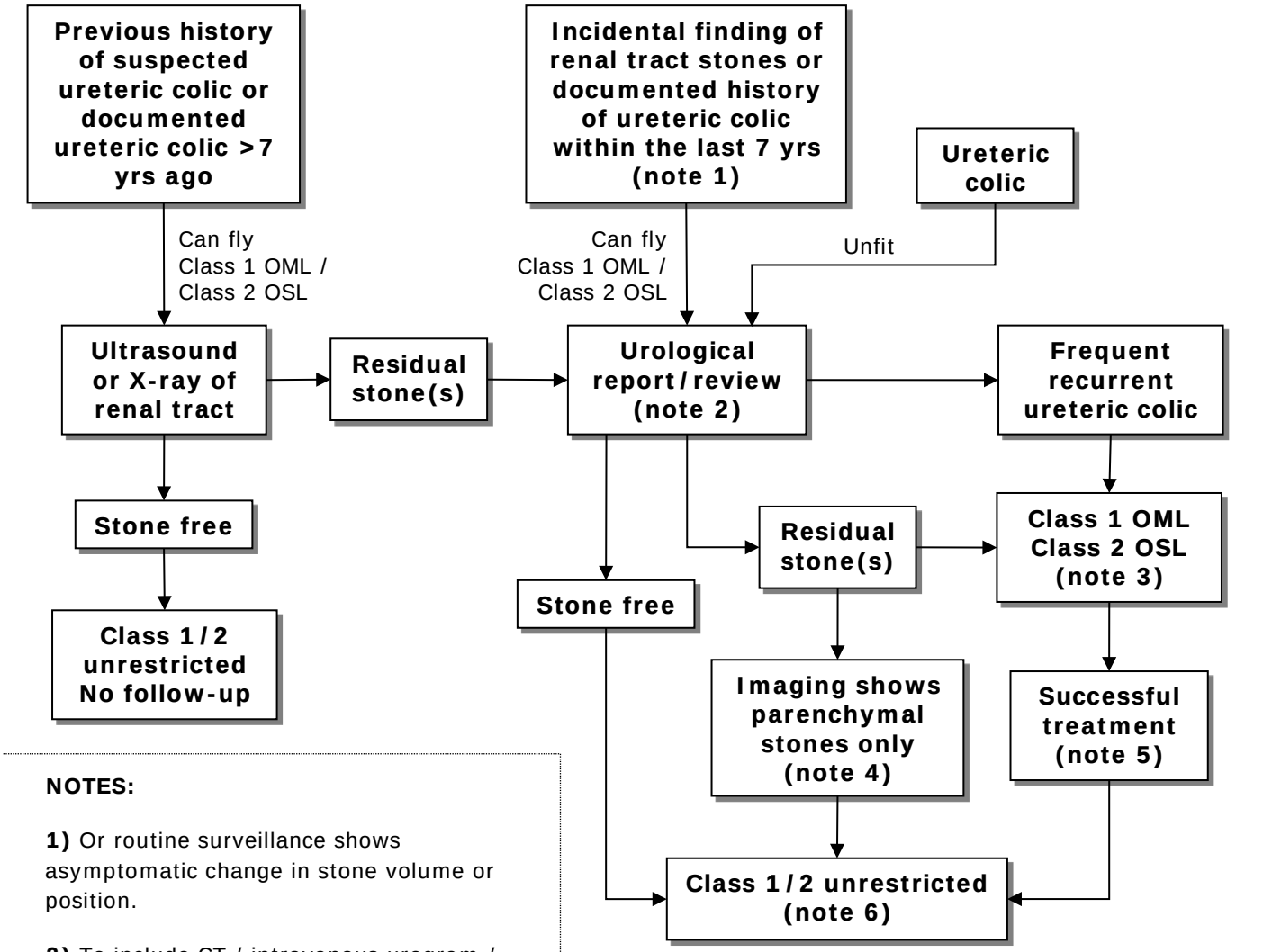
NOTES:

1) PCR >100 mg/mmol or ACR >70 mg/mmol precludes applicants from medical certification.

2) Transient causes of non visible haematuria should be excluded, i.e. urinary tract infection, exercise induced, menstruation. Repeat samples to be tested within 1 months if pilot to remain fit.

3) For medical certification to be considered a report is required detailing the diagnosis, outcome of any investigations and treatment.

Flowchart – Renal stones certification



NOTES:

1) Or routine surveillance shows asymptomatic change in stone volume or position.

2) To include CT / intravenous urogram / ultrasound / Biochemistry results as appropriate.

3) Applicants with frequent / recurrent stone formation require individual assessment and follow up. In some cases a permanent limitation or unfit assessment may be necessary.

4) If imaging shows stones not in calyces or collecting system, unrestricted certification may be considered by the Medical Assessor.

5) Results acceptable and no stones in calyces or collecting system.

6) Surveillance imaging shows no recurrence and/or change in volume or position of stone(s): AXR or Ultrasound of renal tract at years 2 and 7.

MED.B.040 – Infectieziekte

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
(a) Aanvragers mogen geen vastgestelde medische geschiedenis of klinische diagnose van een infectieziekte hebben die de veilige uitoefening van de rechten verbonden aan het toepasselijke bewijs van bevoegdheid waarschijnlijk verstoort.	**Class 1** ***(a)*** *Infectious disease - General* In cases of infectious disease, consideration should be given to a history of, or clinical signs indicating, underlying impairment of immune system. **Class 1** ***(b)*** *Tuberculosis* Applicants with active tuberculosis should be assessed as unfit. A fit assessment may be considered following completion of therapy. **Class 2** ***(a)*** *Tuberculosis* Applicants with active tuberculosis should be assessed as unfit until completion of therapy. **Class 1** ***(c)*** *Syphilis* Acute syphilis is disqualifying. A fit assessment may be considered in the case of those fully treated and recovered from the primary and secondary stages. **Class 1** ***(e)*** *Infectious hepatitis* Infectious hepatitis is disqualifying. A fit assessment may be considered after full recovery.	**Infectious hepatitis** ***Hepatitis A*** Hepatitis A infection is disqualifying. Certification will be considered upon full recovery. ***Hepatitis B*** Acute hepatitis B is disqualifying. Certification may be considered upon full recovery (viral clearance). Certification may be considered in pilots in the 'immune tolerant' or 'inactive HBV carrier state' of chronic hepatitis B. Pilots are required to submit a report from a liver specialist, to include: • History of infection • Current symptoms • Stability of condition • Liver function tests • HBV serology • HBV DNA levels • Alphafoetoprotein (AFP) • Report of ultrasound of the liver Requirement for treatment is disqualifying. ***Hepatitis C*** Acute hepatitis C is disqualifying. Certification may be considered upon full recovery (viral clearance). Certification may be considered following successful treatment which has rendered the pilot disease free from chronic hepatitis C. Pilots are required to submit a report from a liver specialist, to include: • History of infection • Current symptoms including an CNS effects • Stability of condition • Liver function tests • HCV serology • HCV RNA and genotype • Report of ultrasound of the liver including biopsy results if available Pilots may be required to undergo neuropsychological assessment. Requirement for treatment is disqualifying, certification may be considered following successful treatment (sustained viral response).
(b) Aanvragers die hiv-seropositief zijn, kunnen na een bevredigende vliegmedische evaluatie als geschikt worden beoordeeld. Aanvragers van	**Class 1** ***(d)*** *HIV infection* ***(1)*** HIV positivity is disqualifying. A fit assessment with a multi-pilot	**HIV infection** Information – Certification for HIV positive applicants

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
een medisch certificaat klasse 1 worden doorverwezen naar de bewijs van bevoegdheidverlenende autoriteit.	limitation may be considered for individuals with stable, non-progressive disease. Frequent review is required. ***(2)*** The occurrence of AIDS or AIDS-related complex is disqualifying. **Class 2** ***(b)*** *HIV infection* A fit assessment may be considered for HIV positive individuals with stable, non-progressive disease if full investigation provides no evidence of HIV-associated diseases that might give rise to incapacitating symptoms.	

Information – Certification for HIV positive applicants

Following diagnosis or on declaration of HIV infection, the pilot should be declared unfit until reports have been obtained from the reviews described in **(a)** to **(e)** below. These can be used to assess functional fitness and the prospective incapacitation risk.

(a) HIV Specialist Review

An accredited specialist in genitourinary/HIV medicine should undertake this review. The report submitted should include:

- A history of infection
- Current symptoms
- Stability of the condition
- History of AIDS defining opportunistic infections or associated illnesses
- CD4+ T cell counts and viral load measurements
- Medication and start dates (describing side-effects if any)
- Results of co-infection testing (including Hep B/C, Cytomegalovirus, Toxoplasmosis and, in at risk cases, tuberculosis)
- HT, Urea and electrolytes, Liver function tests, fasting glucose and lipids

(b) Neurology Review

Assessment should be undertaken to look for neurological sequelae either of HIV positivity or therapy by an HIV specialist or consultant neurologist.

(c) Neuropsychological Review

The pilot should undertake a baseline neuropsychological assessment. The tests should assess timed psychomotor tasks and memory tasks which require attention, learning and active monitoring or retrieval of information. These baseline tests may be used as a future comparator.

(d) Psychiatry Review (if clinically indicated)

Assessment should be undertaken by a consultant psychiatrist with particular attention paid to the psychiatric symptoms and signs related to HIV seropositivity and or Anti Retroviral Therapy (ART). There is evidence in the immediate post diagnosis phase of a higher risk of developing a depressive illness. Some medication may also have side-effects such as mood changes and/or depressive illness. An initial assessment of these conditions can be made by the treating HIV specialist with a further assessment by a psychiatrist if indicated.

(e) Cardiology Review (if clinically indicated)

Lipodystrophy and metabolic syndrome may arise as an interaction between HIV disease and or immune recovery and ART. This may manifest as a dyslipidaemia with raised total cholesterol, low HDL cholesterol and raised Triglycerides or insulin resistance and hyperglycaemia. Cardiology review is required in the presence of significant cardiac risk factors e.g.:

- Hypertension
- Family history
- Smoking
- Raised Lipids
- Diabetes
- Age
- Evidence of Left Ventricular Hypertrophy

Aeromedical Certification Assessment

Pilots whose condition is stable, asymptomatic, with an acceptable CD4+ count and viral load, with acceptable co-infection serology and therefore an acceptable risk of disease progression may be considered for a class 1 with an Operational Multi-pilot Limitation. These applicants should be referred to

the Medical Assessor. Class 2 applicants who are similarly well and have an acceptable risk of disease progression can be considered in consultation with the Medical Assessor.

Medication

All medications should be discussed with the AME or Medical Assessor.

Certificate holders should be declared unfit whilst initiating, modifying or discontinuing antiretroviral treatment (ART) and may be reassessed after a period of 2 months, although in some cases it may be at least 6 months before recertification, by means of a report from their treating HIV specialist, to include recent CD4+ counts and viral loads and confirmation of an absence of ongoing side-effects from medication or symptoms related to HIV seropositivity.

Follow Up

3 monthly	Viral loads and CD4+ count (can be submitted as part of a 6 monthly report from HIV specialist to include neurology review, if applicant remains stable with no symptoms related to infection or treatment).
6 monthly	Report with neurology review - see **(b)** above. If on ART, blood results should include Liver function tests and HT.
12 monthly	If on ART, blood results should include lipids and fasting glucose. Cognitive Function Assessments (can be Licence Proficiency Check or Medical Flight Test with a Flight Examiner where risk of disease progression is low). Impaired performance will require further neuropsychological assessment to be compared with baseline testing and any deficits will require that the pilot is declared unfit. Further co-infection testing will be required as clinically indicated, and those with positive tests need to be referred to the Medical Assessor in the case of class 1 certificate holders or assessed in consultation with the Medical Assessor in the case of class 2 certificate holders. New symptoms or results outside acceptable limits are likely to lead to an unfit assessment and should be referred to/assessed in consultation with the Medical Assessor in accordance with the class of certificate held.

MED.B.045 – Obstetrie en gynaecologie

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
(a) Aanvragers mogen geen functionele of structurele obstetrische of gynaecologische aandoening hebben die de veilige uitoefening van de rechten verbonden aan het/de toepasselijke bewijs/bewijzen van bevoegdheid waarschijnlijk verstoort.		**Polycystic Ovary Syndrome (PCOS)** Ongoing medical certification is subject to a specialist gynaecologist report. This should include a cardiovascular and metabolic risk assessment and review of any symptoms of obstructive sleep apnoea syndrome(OSAS). A diagnosis of cardiovascular, metabolic disease or OSAS entails unfitness and risk factors should be addressed. Hormone manipulation therapy is acceptable subject to confirmation of no side effects and adequate symptom control. Note: Metformin & thiazolidinediones are unlicensed for use in PCOS and may only be used in consultation with the Medical Assessor on a case-by-case basis. **Endometriosis** Applicants with a first diagnosis of endometriosis should be assessed as unfit. Recertification is considered subject to a specialist gynaecologist report. Recertification is considered if the applicant is symptom free, on minimal analgesics and/or has minimal side effects from hormone manipulation therapy. Surgery entails unfitness. (See below) **Hormone Replacement Therapy** Applicants undergoing, or changing, hormone replacement therapy (HRT) should refrain from flying/controlling for at least 2 weeks to ensure they have no side effects from the medication. Failure to control symptoms of concern should entail unfitness until stability on appropriate medication is achieved. A report from a gynaecologist or General Practitioner (GP) which should include a cardiovascular risk assessment, confirmation of no side effects of therapy and adequate symptom control, should be reviewed by the AME.
(b) Aanvragers die een grote gynaecologische operatie hebben ondergaan, worden als ongeschikt beoordeeld to ze volledig hersteld zijn.	**Class 1** ***(a)*** *Gynaecological surgery* An applicant who has undergone a major gynaecological operation shall be assessed as unfit for a period of three months or until such time as the effects of the operation are not likely to interfere with the safe exercise of the privileges of the licence(s) if the holder is completely asymptomatic and there is only a minimal risk of secondary complication or recurrence.	**Gynaecological Surgery** The period of unfitness will vary according to the type of surgery and any post-operative complications. A minimum period of 1 week should elapse after a Dilatation and Curettage (D&C), 6 weeks after laparoscopic hysterectomy, 8 weeks after vaginal hysterectomy and 12 weeks after an abdominal hysterectomy. Laparoscopy involving insertion of gas in to the abdominal cavity may require 2 weeks

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
	Class 2 ***(a)*** *Gynaecological surgery* An applicant who has undergone a major gynaecological operation should be assessed as unfit until such time as the effects of the operation are not likely to interfere with the safe exercise of the privileges of the licence(s). **Class 1** ***(b)*** *Severe menstrual disturbances* An applicant with a history of severe menstrual disturbances unamenable to treatment shall be assessed as unfit.	prior to returning to flying. A gynaecological report should be obtained. **Menorrhagia** Applicants requiring specialist investigation for menorrhagia should be assessed as unfit. Recertification is considered subject to a satisfactory specialist gynaecologist report. The applicant should be symptom free and/or have minimal side effects from hormone manipulation therapy. Haemoglobin should be within normal limits. Surgery entails unfitness until symptom-free following recovery.
(c) *Zwangerschap* ***(1)*** Indien het luchtvaartgeneeskundig centrum of de bevoegde keuringsarts de houder van bewijs van bevoegdheid in geval van zwangerschap geschikt acht om haar rechten uit te oefenen, wordt de geldigheidsduur van het medisch certificaat beperkt tot het einde van de 26e week van de zwangerschap. Daarna wordt het certificaat opgeschort. De opschorting wordt opgeheven na volledig herstel volgend op het einde van de zwangerschap. ***(2)*** Houders van medisch certificaten klasse 1 mogen de rechten verbonden aan hun bewijs van bevoegdheid uitsluitend met een OML uitoefenen tot de 26e week van de zwangerschap. Onverminderd MED.B.001 kan de OML in dit geval worden opgelegd en geschrapt door het luchtvaartgeneeskundig centrum of de bevoegde keuringsarts.	**Class 1** ***(c)*** *Pregnancy* ***(1)*** A pregnant licence holder may be assessed as fit with a multi-pilot limitation during the first 26 weeks of gestation, following review of the obstetric evaluation by the AeMC or AME who should inform the licensing authority. ***(2)*** The AeMC or AME should provide written advice to the applicant and the supervising physician regarding potentially significant complications of pregnancy. **Class 2** ***(c)*** *Pregnancy* ***(1)*** A pregnant licence holder may be assessed as fit during the first 26 weeks of gestation following satisfactory obstetric evaluation. ***(2)*** Licence privileges may be resumed upon satisfactory confirmation of full recovery following confinement or termination of pregnancy.	**In Vitro Fertilisation** Applicants undergoing a first cycle of IVF should be declared unfit. Recertification may be considered subject to an acceptable specialist gynaecologist report. The report should confirm no evidence of continuing ovarian hyperstimulation or other associated side effects and intended future management including medication. The applicant should remain assessed as unfit if pregnancy is confirmed. **Pregnancy Information Sheet** Pilots should be advised to give a copy of this information sheet to their midwife or doctor for inclusion in their medical notes. This information sheet is included as an attachment to this document. Periods of unfitness for subsequent cycles should be determined according to the issues experienced during previous cycles. **Miscarriage or termination of Pregnancy** Applicants who suffer a miscarriage or have a termination of pregnancy should be assessed as unfit. Recertification is considered subject to a GP or gynaecologist report. The report should confirm they have fully recovered, with no residual symptoms, a normal haemoglobin and comment on psychological status. Before returning to flying class 1 applicants should undergo an assessment by their AME of their psychological state.

MED.B.050 – Spier- en skeletstelsel

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
(a) Aanvragers mogen geen aangeboren of verworven afwijking van de botten, gewrichten, spieren of pezen hebben die de veilige uitoefening van de rechten verbonden aan het/de toepasselijke bewijs/bewijzen van bevoegdheid waarschijnlijk verstoort.	**Class 1 & 2** ***(a)*** An applicant with any significant sequela from disease, injury or congenital abnormality affecting the bones, joints, muscles or tendons with or without surgery requires full evaluation prior to a fit assessment.	
(b) Een aanvrager dient voldoende zithoogte, arm- en beenlengte en spierkracht te hebben voor de veilige uitoefening van de rechten verbonden aan het/de toepasselijke bewijs/bewijzen van bevoegdheid.	**Class 1** ***(b)*** In cases of limb deficiency, a fit assessment may be considered following a satisfactory medical flight test or simulator testing. **Class 2** ***(b)*** In cases of limb deficiency, a fit assessment may be considered following a satisfactory medical flight test.	**Examination of the musculoskeletal system** At routine medical examination much information on musculoskeletal function is obtained informally by observation of the applicant as they walk, sit, climb onto the examining couch etc. At the initial examination, following musculoskeletal injury or if there is any other reason to suspect impaired function, formal examination is required. This will include, as a minimum, demonstration of a satisfactory range and strength of neck and limb movement, of stability of joints likely to be subjected to prolonged or sudden stress and the absence of pain or medication side-effects likely to affect concentration or judgement. More detailed examination will be required for applicants with musculoskeletal disease/injury and supplementary notes can be found in: Information – Examination of the musculoskeletal system. The Medical Flight Test Form is included as an attachment to this document. Report specifications – Musculoskeletal
(c) Een aanvrager dient voldoende over functioneel gebruik van het spier- en skeletstelsel te beschikken dat hem/haar in staat stelt de voorrechten van het/de toepasselijke bewijs/bewijzen van bevoegdheid veilige wijze uit te oefenen. De geschiktheid van de aanvragers dient te worden bepaald in overleg met de autoriteit die het bewijs van bevoegdheid afgeeft.	**Class 1** ***(c)*** An applicant with inflammatory, infiltrative, traumatic or degenerative disease of the musculoskeletal system may be assessed as fit provided the condition is in remission and the applicant is taking no disqualifying medication and has satisfactorily completed a medical flight or simulator flight test. A limitation to specified aircraft type(s) may be required. **Class 2** ***(c)*** An applicant with inflammatory, infiltrative, traumatic or degenerative disease of the musculoskeletal system may be assessed as fit, provided the condition is in remission and the applicant is taking no disqualifying medication and has satisfactorily completed a medical flight test. A	**Physical Disability and Aviation Medical Certification** In the aviation environment impairment of the musculoskeletal system may cause difficulty in entry to and exit from an aircraft and safe operation of controls. Restricted mobility may adversely affect the ability to read instruments or keep a satisfactory lookout. Applicants for medical certification with musculoskeletal disabilities require assessment to ensure they have the strength and range of movement necessary to operate an aircraft safely, with aids or modifications to controls as appropriate, and that they are not experiencing symptoms or medication side effects likely to impair judgement and concentration.

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
	limitation to specified aircraft type(s) may be required. **Class 1** ***(d)*** Abnormal physique, including obesity, or muscular weakness may require medical flight or flight simulator testing. Particular attention should be paid to emergency procedures and evacuation. A limitation to specified aircraft type(s) may be required. **Class 2** ***(d)*** Abnormal physique or muscular weakness may require a satisfactory medical flight test. A limitation to specified aircraft type(s) may be required.	Information - Obesity and medical certification Report specifications – Musculoskeletal

Information – Examination of the musculoskeletal system

To perform the tasks involved in inspecting, flying and evacuating an aircraft safely and effectively a pilot must be free of pain and have sufficient strength and range of movement in the spine and limbs.

At routine medical examination information on musculoskeletal function is obtained informally by observation of the applicant as they walk, sit, climb onto the examining couch etc. At the initial examination, following musculoskeletal injury or if there is any other reason to suspect impaired function, formal examination is required. This will include, as a minimum, demonstration of a satisfactory range and strength of neck and limb movements, of stability of joints likely to be subjected to prolonged or sudden stress and the absence of pain or side effects of medication likely to affect concentration or judgement.

Neck movement is essential to keep a satisfactory lookout and the initial applicant must show a good range of flexion, extension, lateral flexion and rotation of the cervical spine.

Examination of lumbar spine movements will help to identify painful conditions which might cause distraction in flight. The initial applicant should demonstrate a good range of flexion, extension, lateral flexion and rotation of the lumbar spine.

Putting the hands behind the head and then behind the back tests elbow and shoulder movements and is usually sufficient to demonstrate satisfactory reach. Observing the applicant writing, tying shoe-laces etc may alert the examiner to the need for further examination of manual dexterity.

If the applicant can squat and stand up comfortably without support he or she has demonstrated sufficient range of movement and strength to operate the brake and rudder pedals.

Physical Disability and Aviation Medical Certification

In the aviation environment impairment of the musculoskeletal system may cause difficulty in entry to and exit from an aircraft and safe operation of controls. Restricted mobility may adversely affect ability to read instruments or keep a satisfactory lookout. Applicants for pilot licensing with musculoskeletal disabilities require assessment to ensure they have adequate strength and range of movement, with aids or modifications to controls as appropriate, and that they are not experiencing symptoms or side effects of medication likely to impair judgement and concentration. A medical flight test will be required to assure satisfactory function in the cockpit environment if there is any major physical disability or any minor disability that has the potential to cause difficulty with any control movement or other required in-flight function, access or egress.

Medical Certification following Musculoskeletal Injury

Significant injury warrants an unfit assessment. The doctor responsible for treating the injury should provide full details of damage sustained and treatment provided. The AME must confirm satisfactory functional recovery. The pilot must show a full pain-free range of movement with sufficient strength to carry out the relevant flying tasks.

For example, a pilot returning to flying after a lower limb injury would have to demonstrate hip, knee and ankle mobility and strength sufficient to assist passengers in aircraft evacuation and to operate rudder and brakes in difficult circumstances such as cross-wind landings.

Report specifications – Musculoskeletal

The following subheadings are for guidance purposes only and should not be taken as an exhaustive list.

1. **Diagnoses**

2. **History**
   - Presenting symptoms, injury, impairment
   - Nature of condition, circumstances surrounding onset, precipitating factors
   - Other relevant medical history

3. **Examination findings at time of clinical report**
   - Stability of joints (stable/unstable)
   - Muscular strength and control (normal/diminished)
     - Relevant forces required (e.g. in the cockpit, arms for stick controls and legs for pedal control)
   - Range of movement and control (restricted/unrestricted)
     - Relevant to limb movements for operation of controls and neck movements for look out

4. **Results of any investigation performed**
   - Blood test results (e.g. HT, urea and electrolytes, liver function tests, erythrocyte sedimentation rate, C-reactive protein)
   - Radiology imaging reports (e.g. x-ray, bone scan, CT, MRI)
   - Other procedures and investigation reports

5. **Treatment**
   - Recent, past and ongoing treatment must be detailed
   - Current and recent past medication (dose, frequency, start date and finish date)
   - Confirmation no side effects from medication
   - Surgical reports

6. **Follow up and further investigations/referrals planned or recommended**
   - Anticipated follow up/frequency of clinical reviews and investigations
   - Prognosis and risk of recurrence
   - Confirmation of full recovery or remission on maintenance dose of acceptable medication and well controlled at date of report

7. **Clinical Implications**
   - Any concerns regarding stability deficits, disease progression, treatment compliance or risk of sudden incapacity

MED.B.055 – Psychiatrie

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
(a) Aanvragers mogen geen vastgestelde medische geschiedenis of klinische diagnose van enige psychiatrische ziekte of invaliditeit, aandoening of stoornis, acuut of chronisch, aangeboren of verworven, hebben die de veilige uitoefening van de rechten verbonden aan het/de toepasselijke bewijs/bewijzen van bevoegdheid waarschijnlijk verstoort.		**Fear of flying** Although fear of flying affects about 15% of the general population, it is unlikely those affected will opt for a career as a pilot and, if they do, habituation with consequent resolution of anxiety will have taken place during training. The development of fear of flying in experienced fliers is normally due to the development of an underlying psychiatric disorder such as adjustment disorder, acute stress disorder, PTSD, agoraphobia, with or without panic disorder, or depression. Management should be appropriate to the diagnosis. Report specifications - Psychological and psychiatric
(b) Aanvragers met een psychische of gedragsstoornis vanwege het gebruik of misbruik van alcohol of andere psychotrope middelen worden als ongeschikt beoordeeld in afwachting van herstel en vrijheid van middelengebruik en op voorwaarde van een bevredigende psychiatrische evaluatie na succesvolle behandeling. Aanvragers van een medisch certificaat klasse 1 worden doorverwezen naar de autoriteit die het bewijs van bevoegdheid afgeeft. De geschiktheid van klasse 2-aanvragers wordt beoordeeld in overleg met de autoriteit die het bewijs van bevoegdheid afgeeft.	**Class 1** ***(h)*** *Disorders due to alcohol or other substance use* ***(1)*** Mental or behavioural disorders due to alcohol or other substance use, with or without dependency, are disqualifying. ***(2)*** A fit assessment may be considered after a period of two years documented sobriety or freedom of substance use. A fit assessment may be considered earlier with a multi-pilot limitation. Depending on the individual case, treatment and review may include: ***(i)*** in-patient treatment of some weeks followed by; ***(A)*** review by a psychiatric specialist; and ***(B)*** ongoing review including blood testing and peer reports, which may be required indefinitely. **Class 2** ***(d)*** *Disorders due to alcohol or other substance use* ***(1)*** Mental or behavioural disorders due to alcohol or other substance use, with or without dependency, are disqualifying. ***(2)*** A fit assessment may be considered in consultation with the licensing authority after a period of two years documented sobriety or freedom of substance use. A fit assessment may be considered earlier with an OSL or OPL limitation. Depending on the individual case, treatment and review may include:	**Disorders due to alcohol or other substance use** Flowchart – Alcohol/substance misuse certification

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
	(i) in-patient treatment of some weeks followed by; ***(A)*** review by a psychiatric specialist; and ***(B)*** ongoing review including blood testing and peer reports, which may be required indefinitely.	
(c) Aanvragers met een psychiatrische aandoening, zoals: ***(1)*** stemmingsstoornis; ***(2)*** neurotische stoornis; ***(3)*** persoonlijkheidsstoornis; ***(4)*** psychische of gedragsstoornis; ondergaan een voldoende psychiatrische evaluatie alvorens een beoordeling van geschiktheid kan worden uitgevoerd.	**Class 1** ***(a)*** *Psychotic disorder* A history of, or the occurrence of, a functional psychotic disorder is disqualifying unless a cause can be unequivocally identified as one which is transient, has ceased and will not recur. **Class 2** ***(a)*** *Psychotic disorder* A history of, or the occurrence of, a functional psychotic disorder is disqualifying unless in certain rare cases a cause can be unequivocally identified as one which is transient, has ceased and will not recur. **Class 1** ***(c)*** *Psychotropic substances* Use or abuse of psychotropic substances likely to affect flight safety is disqualifying. **Class 2** ***(c)*** *Psychotropic substances* Use or abuse of psychotropic substances likely to affect flight safety is disqualifying. If a stable maintenance psychotropic medication is confirmed, a fit assessment with an OSL limitation may be considered. **Class 1** ***(b)*** *Organic mental disorder* An organic mental disorder is disqualifying. Once the cause has been treated, an applicant may be assessed as fit following satisfactory psychiatric review. **Class 1** ***(e)*** *Mood disorder* An established mood disorder is disqualifying. After full recovery and after full consideration of an individual case a fit assessment, may be considered, depending on the characteristics and gravity of the mood disorder. If a stable maintenance psychotropic medication is confirmed, a fit assessment should require an OML limitation. **Class 1** ***(f)*** *Neurotic, stress-related or somatoform disorder*	**Psychotropic substances** Report specifications - Psychological and psychiatric **Mood disorder** Flowchart – Depression certification Report specifications - Psychological and psychiatric

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
	Where there is suspicion or established evidence that an applicant has a neurotic, stress-related or somatoform disorder, the applicant should be referred for psychiatric opinion and advice. **Class 1** ***(g)*** *Personality or behavioural disorder* Where there is suspicion or established evidence than an applicant has a personality or behavioural disorder, the applicant should be referred for psychiatric opinion and advice.	
(d) Aanvragers met een geschiedenis van een enkele of herhaaldelijke daden van opzettelijke zelfbeschadiging worden als ongeschikt beoordeeld. Eerst na een bevredigende psychiatrische evaluatie kan een beoordeling van geschiktheid worden overwogen.	**Class 1** ***(i)*** *Deliberate self-harm* A single self-destructive action or repeated acts of deliberate self-harm are disqualifying. A fit assessment may be considered after full consideration of an individual case and may require psychiatric or psychological review. Neuropsychological assessment may also be required.	Report specifications - Psychological and psychiatric
(e) Luchtvaartmedische beoordeling: ***(1)*** aanvragers van een medisch certificaat klasse 1 met een van de aandoeningen die in punt ***(b)***, ***(c)*** of ***(d)*** hierboven worden beschreven, worden doorverwezen naar de autoriteit die het bewijs van bevoegdheid afgeeft; ***(2)*** de geschiktheid van klasse 2-aanvragers met een van de aandoeningen die in punt ***(b)***, ***(c)*** of ***(d)*** hierboven worden beschreven, wordt beoordeeld in overleg met de autoriteit die het bewijs van bevoegdheid afgeeft.		
(f) Aanvragers met een vastgestelde geschiedenis of klinische diagnose van schizofrenie, schizotypische of waanstoornis worden als ongeschikt beoordeeld.	**Class 1** ***(d)*** *Schizophrenia, schizotypal or delusional disorder* Applicants with an established schizophrenia, schizotypal or delusional disorder should only be considered for a fit assessment if the licensing authority concludes that the original diagnosis was inappropriate or inaccurate or, in the case of a single episode of delirium, provided that the applicant has suffered no permanent impairment. **Class 2** ***(c)*** *Schizophrenia, schizotypal or delusional disorder* An applicant with a history if schizophrenia, schizotypal or delusional	Report specifications - Psychological and psychiatric

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
	disorder may only be considered fit if the original diagnosis was inappropriate or inaccurate as confirmed by psychiatric evaluation or, in the case of a single episode of delirium, provided that the applicant has suffered no permanent impairment.	

Report specifications - Psychological and psychiatric

The following subheadings are for guidance purposes only and should not be taken as an exhaustive list.

1. **Diagnoses**

2. **History**
   - Presenting symptoms, including reason for referral
   - Nature of condition, circumstances surrounding onset, precipitating factors
   - Other relevant medical history

3. **Nature severity and course of illness**
   - Current symptoms
     - Specifically include details of any sleep deprivation, suicidal ideation, deliberate self-harm or delusions
   - Results of clinical questionnaires

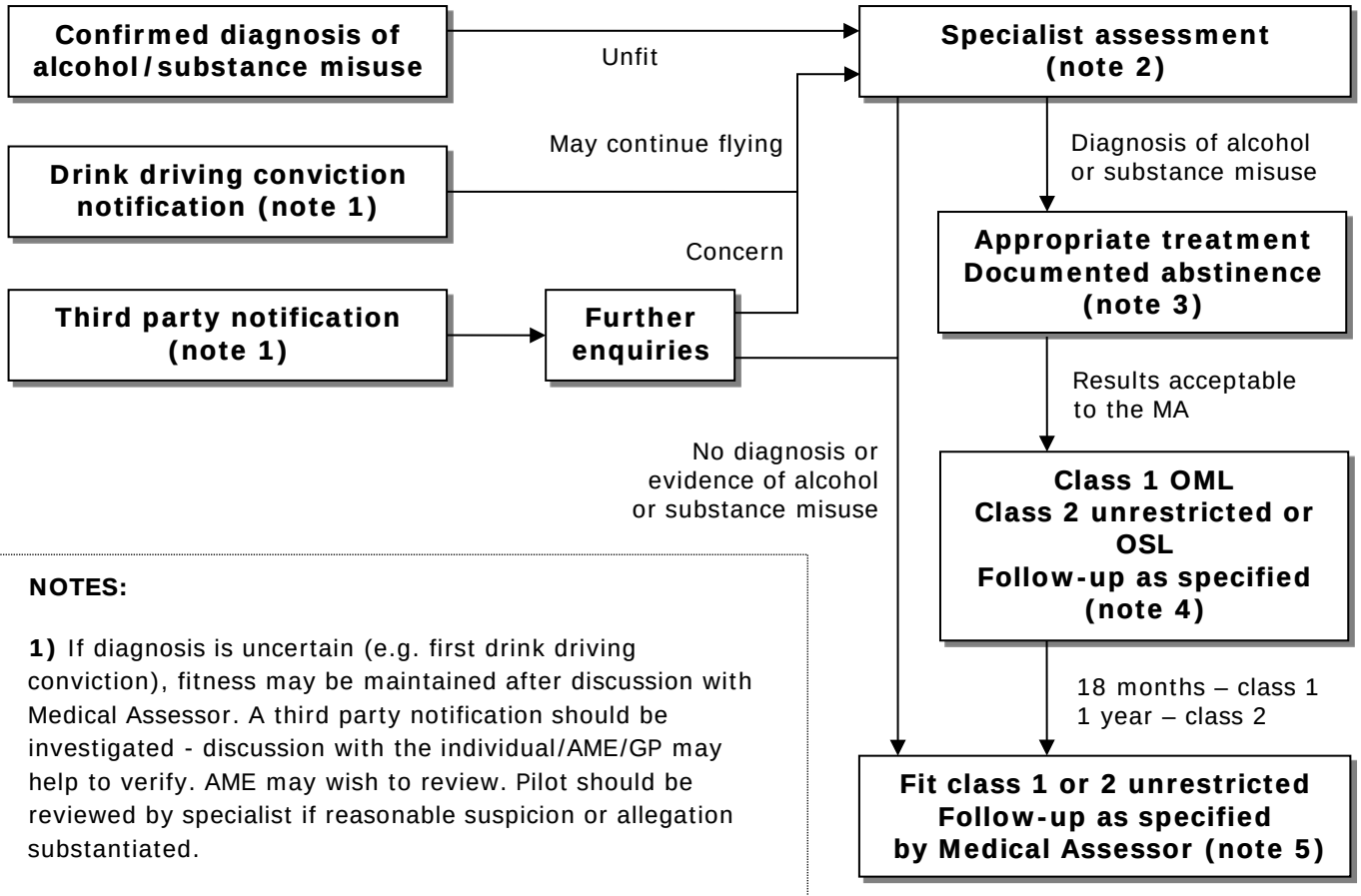
4. **Treatment**
   - Received to date (past and ongoing treatment should be detailed)
   - Current and recent past medication (dose, frequency, start date and finish date)
   - Details of any side effects from medication
   - Details of referral for further treatment to other healthcare professionals

5. **Follow up anticipated**
   - Anticipated follow up/frequency of clinical reviews and investigations

6. **Likelihood of recurrence**
   - Prognosis and risk of recurrence

7. **Clinical implications**
   - Any concerns regarding symptom and diagnosis progression, treatment compliance or risk of incapacity

Flowchart – Alcohol/substance misuse certification



NOTES:

1) If diagnosis is uncertain (e.g. first drink driving conviction), fitness may be maintained after discussion with Medical Assessor. A third party notification should be investigated - discussion with the individual/AME/GP may help to verify. AME may wish to review. Pilot should be reviewed by specialist if reasonable suspicion or allegation substantiated.

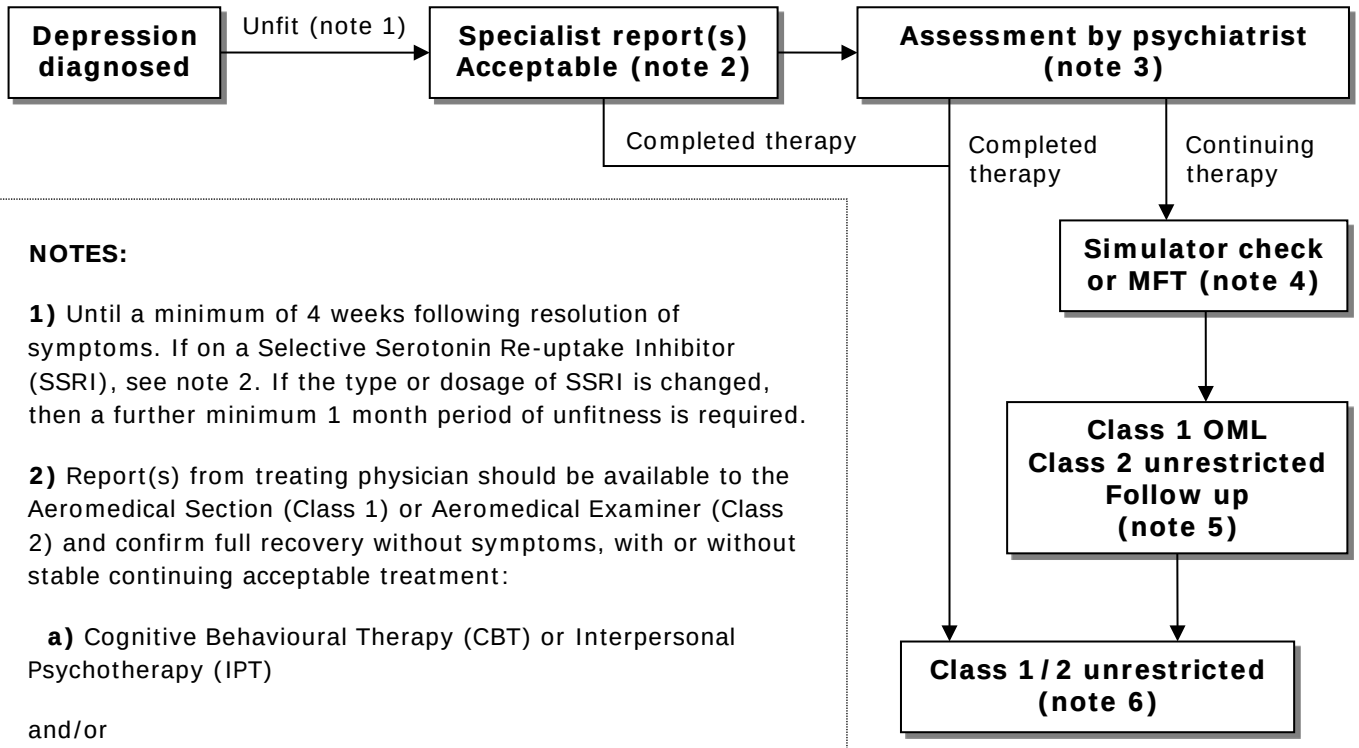
2) By CAA specialist advisor in alcohol and addiction disorders. To include bloods: MCV, GGT and % CDT (for alcohol misuse) and hair analysis for cannabis, amphetamines, methamphetamines, cocaine, opiates and BDZs (for substance misuse).

3) Depending on the individual case and at the discretion of the Medical Assessor, treatment and review may include in-patient treatment of some weeks followed by periodic specialist review, and blood/hair testing and buddy reports at each review.

4) A fit assessment may be considered by the Medical Assessor after a period of two years documented sobriety or freedom from substance use. At revalidation or renewal a fit assessment may be considered earlier and a multi-pilot (Class 1 'OML') or safety pilot limitation (Class 2 'OSL') may be appropriate.

5) Follow up may be required indefinitely in severe cases. If relapse occurs, a further period of grounding is required, pending further assessment/treatment. More than one episode of relapse is disqualifying.

Flowchart – Depression certification



NOTES:

1) Until a minimum of 4 weeks following resolution of symptoms. If on a Selective Serotonin Re-uptake Inhibitor (SSRI), see note 2. If the type or dosage of SSRI is changed, then a further minimum 1 month period of unfitness is required.

2) Report(s) from treating physician should be available to the Aeromedical Section (Class 1) or Aeromedical Examiner (Class 2) and confirm full recovery without symptoms, with or without stable continuing acceptable treatment:

a) Cognitive Behavioural Therapy (CBT) or Interpersonal Psychotherapy (IPT)

and/or

b) SSRIs: only Citalopram, Sertraline or Escitalopram are acceptable as maintenance therapy. No other psychotropic medication is permitted.

The pilot should only be returned to flying duties if psychiatric assessment is satisfactory and either treatment is complete without recurrence or they remain on maintenance SSRI therapy.

A psychiatrist assessment may be indicated in some class 1 cases and for all cases (Class 1 and 2) where the pilot is still undergoing therapy and/or taking an acceptable SSRI.

3) If the type or dosage of the SSRI has been changed, or the condition is not stable, then a further period(s) of unfitness shall be required until both dose and condition are stable. Further report(s) from treating physician may be required. If the SSRI is being discontinued the earliest return to fitness is 4 weeks after ceasing medication.

4) Simulator check (Class 1) or Medical Flight Test (MFT) (Class 2 – with a Chief Flying Instructor or Flight Instructor Examiner) is required.

5) Follow up to be determined by a psychiatrist, initially every 3 months whilst being treated. 'Buddy reports' may be requested.

6) Follow up: class 2 AME (with clinical reports if available). Class 1 to be determined by a psychiatrist. Unrestricted class 1 is only possible 6 months after cessation of all treatment.

MED.B.060 – Psychologie

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
(a) Aanvragers mogen geen vastgestelde psychologische gebreken hebben die de veilige uitoefening van de rechten verbonden aan het/de toepasselijke bewijs/bewijzen van bevoegdheid waarschijnlijk verstoort. ***(b)*** Er kan een psychologische evaluatie worden verlangd als onderdeel van, of als aanvulling op, een specialistisch psychiatrisch of neurologisch onderzoek.	**Class 1** ***(a)*** Where there is suspicion or established evidence that an applicant has a psychological disorder, the applicant should be referred for psychological opinion and advice. ***(b)*** Established evidence should be verifiable information from an identifiable source which evokes doubts concerning the mental fitness or personality of a particular individual. Sources for this information can be accidents or incidents, problems in training or proficiency checks, delinquency or knowledge relevant to the safe exercise of the privileges of the applicable licence. ***(c)*** The psychological evaluation may include a collection of biographical data, the administration of aptitude as well as personality tests and psychological interview. ***(d)*** The psychologist should submit a written report to the AME, AeMC or licensing authority as appropriate, detailing his/her opinion and recommendation. **Class 2** Applicants with a psychological disorder may need to be referred for psychological or neuropsychiatric opinion and advice.	Applicants with Dyslexia, Asperger syndrome and ADHD require an assessment by a psychologist and/or psychiatrist. Report specifications - Psychological and psychiatric

MED.B.065 – Neurologie

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
(a) Aanvragers mogen geen vastgestelde medische geschiedenis of klinische diagnose van enige neurologische aandoening hebben die de veilige uitoefening van de rechten verbonden aan het/de toepasselijke bewijs/bewijzen van bevoegdheid waarschijnlijk verstoort.		**Cerebral aneurysm, Sub-Arachnoid haemorrhage including coiling** Three factors influence aeromedical safety: **1.** Any neurological damage from the bleed or subsequent surgery **2.** The risk of epilepsy (which may be modified by surgery) and; **3.** The risk of future bleeding. A full neurological report must be obtained which gives information about these factors, the presentation, exact diagnosis, surgical treatment and post-operative course. Information on post-operative medication, if any, must be obtained. The site of the aneurysm and nature of the surgical treatment will determine the overall risk of epilepsy in the future and this will determine the certification decision that can be taken. Once neurology reports and investigation results are available class 1 cases should be referred to the Medical Assessor and class 2 cases managed by AMEs in consultation with the Medical Assessor.
(b) Aanvragers met een vastgestelde geschiedenis of klinische diagnose van: ***(1)*** epilepsie; ***(2)*** terugkerende episodes van verstoring van het bewustzijn met onzekere oorzaak; worden als ongeschikt beoordeeld. ***(c)*** Aanvragers met een vastgestelde geschiedenis of klinische diagnose van: ***(1)*** epilepsie zonder herhaling na de leeftijd van 5 jaar; ***(2)*** epilepsie zonder herhaling en zonder behandeling gedurende meer dan 10 jaar;	**Class 1** ***(a)*** *Epilepsy* ***(1)*** A diagnosis of epilepsy us disqualifying, unless there is unequivocal evidence of a syndrome of benign childhood epilepsy associated with a very low risk of recurrence, and unless the applicant has been free of recurrence and off treatment for more than 10 years. One or more convulsive episodes after the age of 5 are disqualifying. In the case of an acute symptomatic seizure, which is considered to have a very low risk of recurrence, a fit assessment may be considered after neurological review. ***(2)*** An applicant may be assessed as fit with a multi-pilot limitation if: ***(i)*** there is a history of a single afebrile epileptiform seizure; ***(ii)*** there has been no recurrence after at least 10 years of treatment; ***(iii)*** there is no evidence of continuing predisposition to epilepsy. **Class 2** ***(a)*** *Epilepsy* An applicant may be assessed as fit if:	**Epilepsy** Epileptiform seizures immediately occurring within 24 hours of a head injury may be acceptable, as may drug related or alcohol withdrawal seizures provided that the causation is certain and the predisposing causes have been acceptably managed. Refer to: Flowchart – Alcohol/substance misuse certification or Table – Head injury certification as appropriate. Neonatal and febrile convulsions occurring under five years of age are not disqualifying. A single unprovoked seizure does not constitute epilepsy. About a third of single seizures in adult life recur. Recurrence is more common in the first three months after the first seizure than subsequently – so a significant seizure-free interval reduces the risk. Two or more unprovoked seizures more than 24 hours apart fulfill the criteria for epilepsy.

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
	(1) there is a history of a single afebrile epileptiform seizure, considered to have a very low risk of recurrence; ***(2)*** there has been no recurrence after at least 10 years off treatment; ***(3)*** there is no evidence of continuing predisposition to epilepsy.	
(3) epileptiforme eeg-afwijkingen en focale trage golven;	**Class 1** ***(c)*** *Clinical EEG abnormalities* ***(1)*** Electroencephalography is required when indicated by the applicant's history or on clinical grounds. ***(2)*** Epileptifor paroxysmal EEG abnormalities and focal slow waves be disqualifying.	**Clinical EEG abnormalities** If an EEG has been undertaken for clinical reasons e.g. a single afebrile seizure, a 'provoked' seizure, head injury, post neurosurgery or infection the report should be available for the AME to review. Rarely, a first degree family history of epilepsy, especially if the mother is affected and if her epilepsy presented in childhood, and the applicant is young, an EEG may be warranted. Medical Assessor advice should be sought.
(4) progressieve en niet-progressieve ziekte van het zenuwstelsel;	**Class 1** ***(d)*** *Neurological disease* Any stationary or progressive disease of the nervous system which has caused or is likely to cause a significant disability is disqualifying. However, in case of minor functional losses associated with stationary disease, a fit assessment may be considered after full evaluation. **Class 2** ***(c)*** *Neurological disease* Any stationary or progressive disease of the nervous system which has caused or is likely to cause a significant disability is disqualifying. In case of minor functional loss associated with stationary disease, a fit assessment may be considered after full evaluation.	**Multiple Sclerosis** Flowchart – Multiple sclerosis certification **Migraine** Flowchart – Migraine certification 5HT1 agonists, ergot alkaloids and antidepressants are in general not permitted because of their side effect profiles. In exceptional circumstances low dose propranolol (10mg 3 times daily or slow release equivalent) may be considered for class 1, on referral to the Medical Assessor, or for class 2 in consultation with the Medical Assessor. Simple analgesics or non-steroidal anti-inflammatory agents are permitted provided that they adequately control symptoms. As with all medications, an adequate period of grounding must take place so that the effectiveness can be assessed and any side effects will become apparent. **Parkinson's disease** A definitive diagnosis of Parkinson's disease will not permit initial class 1 or 2 certification. Once the disease becomes clinically evident there is a high incidence of cognitive dysfunction which may progress to dementia. There is also a high incidence of depression. Bradykinesia and tremor may present a flight safety hazard. Additionally the disease process is generally progressive which makes it difficult to predict the

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
		cognitive and physical function a few months ahead. Pilots with a diagnosis of Parkinson's disease will be made unfit pending neurology review. For commercial pilots this must be with a neurologist with a specialist interest in aviation. Most medications used to treat Parkinson's disease are unacceptable for certification due to their side-effects but amantadine and selegiline are acceptable. Return to flying will be with an OML limitation and subject to a satisfactory simulator check. Due to the progressive nature of the disease there must be an adequate process in place for regular clinical and functional review. Class 2 applicants may regain certification, which may be subject to an OSL, once a satisfactory report is obtained from a consultant neurologist, in consultation with the Medical Assessor.
(5) een enkele episode of verstoring van het bewustzijn met onzekere oorzaak;	**Class 1** ***(e)*** *Episode of disturbance of consciousness* In the case of a single episode of disturbance of consciousness, which can be satisfactorily explained, a fit assessment may be considered, but a recurrence is normally disqualifying.	**Episode of disturbance of consciousness** Information – Certification after cerebrovascular events, stroke and transient ischaemic attack Information – Carotid or vertebral artery dissection certification **Transient Global Amnesia (TGA)** A diagnosis of TGA should be confirmed by a neurologist. Initial certification (Class 1 or 2) is not possible. If investigations (EEG and appropriate scanning) are normal and if there has been no recurrence for 12 months then, for class 1, a review should be undertaken by a neurologist. If satisfactory a class 1/OML may be issued. For a class 2 revalidation or renewal, recertification with an OSL may be considered. Flowchart – Neuro-cardiogenic syncope certification
(6) verlies van bewustzijn na hoofdletsel; ***(7)*** penetrerend hersenletsel;	**Class 1** ***(f)*** *Head injury* An applicant with a head injury which was severe enough to cause loss of consciousness or is associated with penetrating brain injury should be reviewed by a consultant neurologist. A fit assessment may be considered of	**Head Injury** History should include the date of the event, post-traumatic amnesia, duration of unconsciousness, any seizure, the presence or absence of skull fracture, and whether any scan or surgical procedure was performed, for example elevating a depressed fracture or removing a blood clot.

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
	there has been a full recovery and the risk of epilepsy is sufficiently low. **Class 2** ***(d)*** *Head injury* An applicant with a head injury which was severe enough to cause loss of consciousness or is associated with penetrating brain injury may be assessed as fit if there has been a full recovery and the risk of epilepsy is sufficiently low.	There may be associated facial or orbital trauma which may need additional assessment, for example formal visual field testing following orbital injury. AMEs should consider Eustachian or sinus dysfunction following trauma. Table – Head injury certification Report specifications – Head injury
(8) spinaal of perifeer zenuwletsel;	**Class 1** ***(g)*** *Spinal or peripheral nerve injury, myopathies* An applicant with a history or diagnosis of spinal or peripheral nerve injury or myopathy should be assessed as unfit. A fit assessment may be considered if neurological review and musculoskeletal assessments are satisfactory.	**Spinal or peripheral nerve injury** A pilot who suffers a peripheral nerve injury should be made unfit. Once sufficient time for recovery has passed an assessment of function can be made. Reports on the injury, its treatment and the recovery should be available. For class 1 applicants a Medical Flight Test should be performed in a relevant simulator or aircraft type with a Type Rated Examiner, to assess the ability of the applicant to perform all the checks, fly the aircraft and perform the emergency drills and evacuation procedures should be obtained. This practical assessment will need to be repeated if there is a change in aircraft type. For class 2 applicants the AME should assess if recovery is complete. If not, a Medical Flight Test report from a flying instructor should be obtained. The Medical Flight Test is included as an attachment in this document. Additional guidance is available in: MED.B.050 – Spier- en skeletstelsel
	Class 1&2 ***(b)*** *Conditions with a high propensity for cerebral dysfunction* An applicant with a condition with a high propensity for cerebral dysfunction should be assessed as unfit. A fit assessment may be considered after full evaluation.	**Dementia/Cognitive Impairment** Dementia (cognitive and behavioural problems severe enough to impair normal function) is incompatible with any form of certification. Mild cognitive impairment does not interfere with normal daily activities but may represent a significant flight safety risk. It is increasingly common with advancing age and may not be recognised by the pilot. Although there are a number of simple tests of cognition that can be used by the AME these are unlikely to pick up mild cognitive impairment. It is important to have an index of suspicion in elderly pilots and ask about their flying and how well they manage different situations, in particular read-back of information and the acquisition of new skills, for example a different communication layout on a different

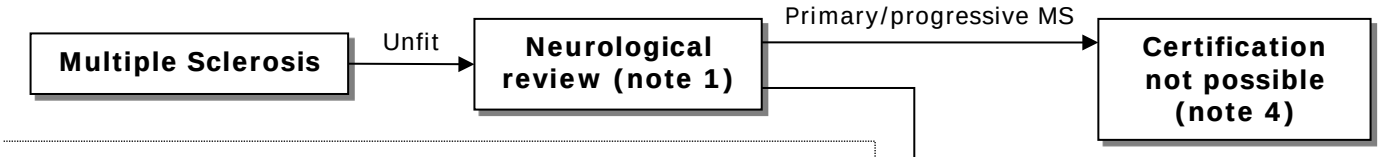
Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
		aircraft. Presentation of a 4-digit number at the start of the medical for recall some time later may be useful. A Medical Flight Test (for class 2) or referral to the Medical Assessor for a simulator assessment with a Type Rated Examiner (for class 1) may be required, specifically to test decision-making skills and conditional tasks. The Medical Flight Test Form is included as an attachment in this document.
ondergaan verdere evaluatie alvorens een beoordeling van geschiktheid kan worden overwogen. Aanvragers van een medisch certificaat klasse 1 worden doorverwezen naar de autoriteit die het bewijs van bevoegdheid afgeeft. De geschiktheid van klasse 2-aanvragers wordt bepaald in overleg met de autoriteit die het bewijs van bevoegdheid afgeeft.		

Table – Head injury certification

Classification	Criteria	Aircrew Medical Category	Assessment*
Minimal	• Any concussive or mild head injury symptoms which have recovered within 48 hours • No loss of consciousness (LOC) • No post traumatic amnesia (PTA) • No neurological deficit • No seizure	Class 1 & 2 Unfit 7 days	Medical report from attending doctor **OR** AME clinical assessment
Mild	• Any concussive or mild head injury symptoms for greater than 48 hours • **Initial Glasgow Coma Score (GCS) 12-15** • LOC less than 30 minutes • PTA less than 30 minutes • No neurological deficit • No skull fracture (if scan performed) • No brain contusion (if scan performed) • No seizure	Class 1 & 2 Unfit for 6 weeks after resolution of any symptoms Class 1 Then OML fur further year	Medical report from attending doctor including investigations **AND** AME clinical assessment after resolution of symptoms
Moderate	• **Initial GCS 9-12** • LOC 30 mins to 24 hours • PTA 30 mins to 24 hours • No neurological deficit • Skull fracture • No brain contusion on CT/MRI • No seizure	Class 1 Unfit for 6 months after resolution of any symptoms Then OML for 2 years Class 2 Unfit for 3 months after resolution of any symptoms Then OSL for 3 months	Medical report from attending specialist including investigations. CT/MRI mandatory before recertification **AND** AME clinical assessment after resolution of symptoms
Severe	• **Initial GCS less than 9** • LOC more than 24 hours • PTA more than 24 hours • Focal neurological deficit • Brain contusion on MRI • Intracranial haemorrhage on CT/MRI • Depressed skull fracture	Class 1 Unfit for 3 years after resolution or stable, non-disabling symptoms Then OML long-term Class 2 Unfit for 1 year after resolution of symptoms or demonstration of stable, non-disabling symptoms Then OSL for 2 years	Medical report from attending specialist including investigations. CT/MRI mandatory before recertification Class 1: satisfactory simulator check Class 2: satisfactory medical flight test **AND** AME clinical assessment
Very severe	• Penetrating brain injury • Significant parenchymal damage • Disabling neurological deficit	Class 1 & 2 Unfit long-term	Medical report from attending specialist including investigations. CT/MRI mandatory before recertification **AND** satisfactory medical flight test **AND** AME clinical assessment

* class 1 cases to be assessed by Medical Assessor apart from minimal (AME), class 2 cases to be assessed by AME

Flowchart – Multiple sclerosis certification



NOTES:

1) class 1: Initial certification not possible. For revalidation/ renewal, assessment after full remission (see Note 2) has been achieved for a minimum of six months by a neurologist. Report from pilot's own neurologist should be made available.

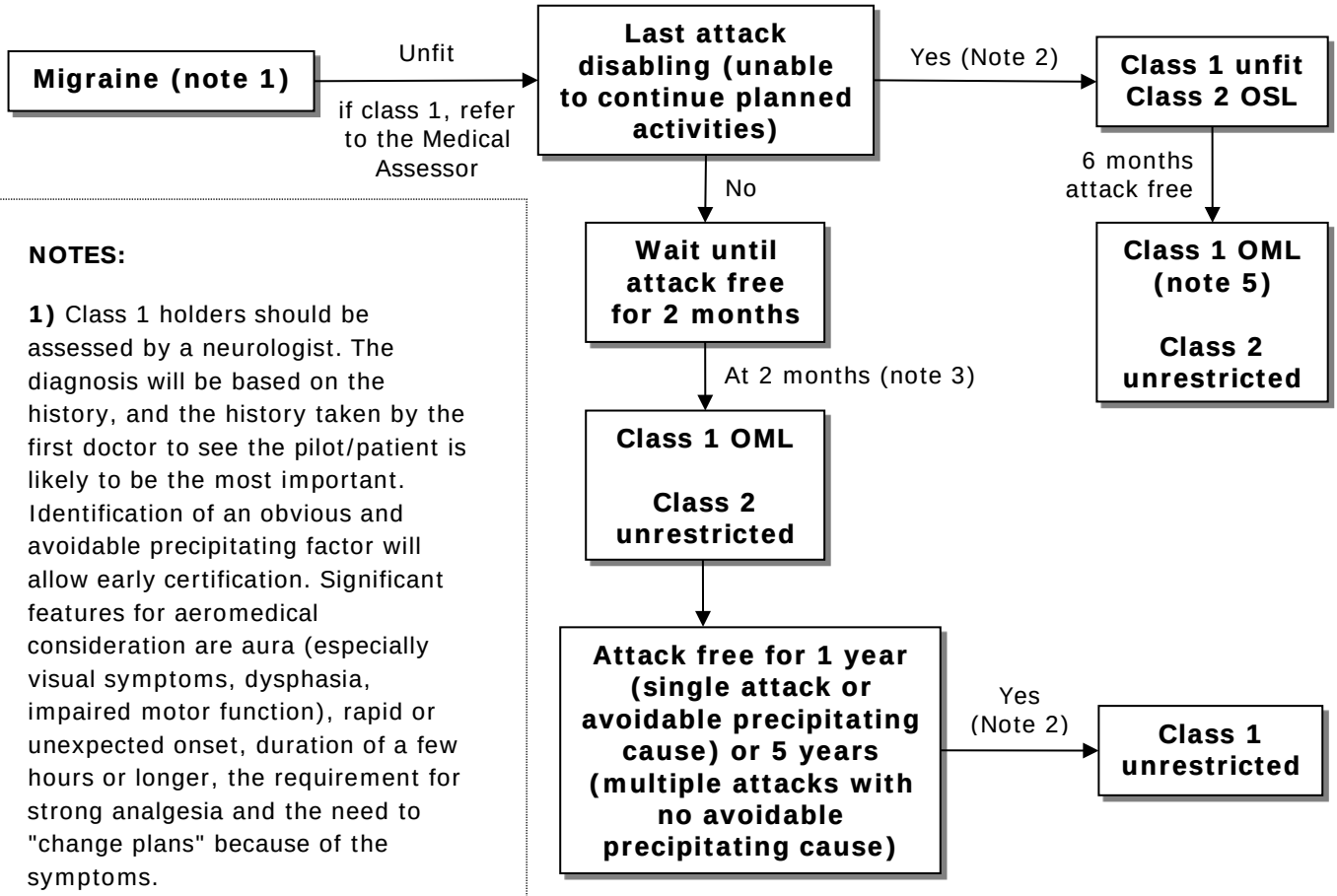
Class 2: Initial certification may be possible with full remission.

2) Six monthly review by a neurologist, six monthly simulator check and +/- ophthalmology review as required.

3) Annual local neurological review. Unrestricted certification may be possible with full remission (no symptoms).

4) Subsequent full recovery may permit certification for (Class1/OML, class 2/OSL) subject to neurological review (Class 1 – Medical Assessor, class 2 – locally).

Flowchart – Migraine certification



NOTES:

1) Class 1 holders should be assessed by a neurologist. The diagnosis will be based on the history, and the history taken by the first doctor to see the pilot/patient is likely to be the most important. Identification of an obvious and avoidable precipitating factor will allow early certification. Significant features for aeromedical consideration are aura (especially visual symptoms, dysphasia, impaired motor function), rapid or unexpected onset, duration of a few hours or longer, the requirement for strong analgesia and the need to "change plans" because of the symptoms.

2) For professional and private pilots already possessing a licence.

3) For professional pilots with a licence and initial applicants for a class 2 medical certificate.

4) Initial applicants for a class 1 certificate or professional pilots with a past history of migraine and a class 1 OML certificate.

Information – Certification after cerebrovascular events, stroke and transient ischaemic attack

Class 1 & 2

Applicants for class 1 and class 2 certification with a diagnosis of Stroke, Transient Ischaemic Attack (TIA) or Reversible Ischaemic Neurological Deficit (RIND) should be assessed as unfit.

The basis for this is an up to date review of the epidemiological studies that has shown that the risk of a future event (including further vascular event, stroke or seizure) will always exceed 1% per annum, usually by a considerable margin, even in individuals under 45 years of age and those with paradoxical embolism. Therefore this also precludes all class 1 and unrestricted class 2 certification.

Class 2 (OSL)

Existing class 2 certificate holders may be considered for recertification by the AME if there is no residual impairment likely to affect flight safety and there are no other significant risk factors including:

- Age >70
- Diabetes
- Uncontrolled hypertension
- Coronary artery disease
- Atrial fibrillation
- Heart failure
- Anticoagulation or underlying coagulation defects if associated with an increased risk of spontaneous bleeding or thrombosis

Assessment

- Review of neurological reports including risk factor control must be satisfactory
- Cardiological review to include exercise ECG testing before certification and on an annual basis
- Echocardiogram
- 24hr ECG recording
- Carotid artery imaging – should show now stenotic lesions ≥50%
- Thrombophilia screening if indicated
- Visual field mapping should be normal
- A medical flight test is required to assess functional capacity with particular reference to cognitive functions and any physical disability

Recertification

Unfit for 12 months then permanent OSL.

Follow-up

Annual cardiological review is required to include exercise testing, and review and investigation of risk factors.

Information – Carotid or vertebral artery dissection certification

The following co-existing conditions are unacceptable for recertification:

- Smoking
- Uncontrolled hypertension
- Coronary artery disease
- Previous stroke or TIA
- Anticoagulation or underlying coagulation defects
- Autosomal dominant polycystic kidney disease
- Osteogenesis imperfect type I

Assessment

- Review of satisfactory neurological and cardiological reports including risk factor control
- Selective arterial angiogram to exclude arterial disease in the carotid or posterior cerebral circulations
- Exercise stress test
- Coronary angiography, if the cause was likely to have been atheromatous or there are any symptoms suggestive of peripheral vascular, carotid or vertebral artery disease
- Formal visual field mapping, if vertebral artery dissection
- A medical flight test is required to assess function capacity with particular reference to cognitive function and any physical disability.

Recertification

- Unfit class 1 for 12 months after recovery then long-term OML
- Unfit class 2 for 6 months after recovery, then OSL for minimum of 6 months, and then consider unrestricted class 2

Follow-up

Annual cardiological review is required to include exercise testing, and review and investigation of risk factors.

Report specifications – Head injury

The following subheadings are for guidance purposes only and should not be taken as an exhaustive list.

1. **Diagnoses**

2. **History**
   - Nature and circumstances surrounding injury
     - Attach personal and witness accounts and paramedic records
   - Duration of loss of consciousness
   - Pre and post traumatic amnesia
   - Other injuries and relevant medical history

3. **Symptoms (post injury period and current)**
   - Any seizures
   - Focal neurological deficits
   - Disorientation or deficits in memory
   - Confusion behaviour alteration disturbance of mood hallucination delusions
   - Generalized intellectual impairment change of personality
   - Coarsening of behaviour e.g. irritability, lack of drive, loss of control aggression

4. **Examination findings**
   - Neurological deficit intellectual impairment or loss of function
   - Compounding factors (e.g. skull fracture, vertigo, headache)
   - Residual impairment

5. **All investigation findings performed (as applicable)**
   - Imaging (CT, MRI)
     - Intracranial haemorrhage
     - Skull fracture
     - Meningeal rupture/penetration of dura
   - Neuropsychological evaluation
   - EEG
   - Other procedures and investigations

6. **Treatment**
   - Past and ongoing treatment must be detailed
   - Current and recent past medications (dose, frequency, start and finish dates)
   - Confirmation of no side effects from medication
   - Surgical reports

7. **Follow up and further investigations/referrals planned or recommended (as applicable)**
   - Anticipated follow up/frequency of clinical reviews and investigations
   - Prognosis and risk of recurrence
   - Confirmation of full recovery at date of report

8. **Clinical implications**
   - Any concerns regarding residual impairment, treatment compliance, or risk of sudden incapacity including post-traumatic epilepsy

MED.B.070 – Visuele systeem

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
(a) Aanvragers mogen geen afwijking van de functie van de ogen of de bijbehorende organen of enige actieve pathologische aandoening, aangeboren of verworven, acuut of chronisch, of restverschijnselen van oogoperaties of trauma, hebben die de veilige uitoefening van de rechten verbonden aan de toepasselijke vergunning(en) waarschijnlijk verstoort.		**Visual system** Report specifications – Ophthalmic **Eye conditions** Information – Eye conditions certification Information – Retinal arterial disorders certification Information – Retinal vein occlusion (RVO) certification
(b) Onderzoek ***(1)*** Voor een medisch certificaat klasse 1: ***(i)*** een uitgebreid oogonderzoek maakt deel uit van het eerste onderzoek en wordt periodiek uitgevoerd afhankelijk van de refractie en de functionele werking van het oog; en ***(ii)*** een routine oogonderzoek maakt deel uit van alle onderzoeken voor verlenging en hernieuwde afgifte.	**Class 1** ***(a)*** *Eye examination* ***(1)*** At each aero-medical revalidation examination, an assessment of the visual fitness should be undertaken and the eyes should be examined with regard to possible pathology. ***(2)*** All abnormal and doubtful cases should be referred to an ophthalmologist. Conditions which indicate ophthalmological examination include, but are not limited to, a substantial decrease in the uncorrected visual acuity, any decrease in best corrected visual acuity and/or the occurrence of eye disease, eye injury, or eye surgery. ***(3)*** Where specialist ophthalmological examinations are required for any significant reason, this should be imposed as a limitation on the medical certificate. ***(b)*** *Comprehensive eye examination* A comprehensive eye examination by an eye specialist is required at the initial examination. All abnormal and doubtful cases should be referred to an ophthalmologist. The examination should include: ***(1)*** history; ***(2)*** visual acuities – near, intermediate and distant vision (uncorrected and with best optical correction if needed); ***(3)*** examination of the external eye, anatomy, media (slit lamp) and fundoscopy; ***(4)*** ocular motility; ***(5)*** binocular vision; ***(6)*** colour vision; ***(7)*** visual fields; ***(8)*** tonometry on clinical indication; and ***(9)*** refraction. Hyperopic initial applicants with a hyperopia of more	**Eye examination** Ophthalmology examination reports and information are included as an attachment to this document. A routine eye examination that forms part of all revalidation and renewal examinations shall include: history; visual acuity, near and distant vision (uncorrected and with best optical correction if needed), examination of the external eye, anatomy, media, fundoscopy and further examination on clinical indication. For conditions where deterioration in visual function may pose a significant risk to flight safety, the Medical Assessor will impose a RXO limitation **Comprehensive eye examination** Eye specialist is defined in MED.A.010.

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
	than +2 dioptres and under the age of 25 should undergo objective refraction in cycloplegia. ***(c)*** *Routine eye examination* A routine eye examination may be performed by an AME and should include: ***(1)*** history; ***(2)*** visual acuities – near, intermediate and distant vision (uncorrected and with best optical correction if needed); ***(3)*** examination of the external eye, anatomy, media and fundoscopy; ***(4)*** further examination on clinical indication.	
	(d) *Refractive error* ***(1)*** At initial examination an applicant may be assessed as fit with: ***(i)*** hypermetropia not exceeding +5,0 dioptres; ***(ii)*** myopia not exceeding -6,0 dioptres; ***(iii)*** astigmatism not exceeding 2,0 dioptres; ***(iv)*** anisometropia not exceeding 2,0 dioptres; provided that optimal correction has been considered and no significant pathology is demonstrated. ***(2)*** Initial applicants who do not meet the requirements in ***(ii)***, ***(iii)*** and ***(iv)*** above should be referred to the licensing authority. A fit assessment may be considered following review by an ophthalmologist. ***(3)*** At revalidation an applicant may be assessed as fit with: ***(i)*** hypermetropia not exceeding +5,0 dioptres; ***(ii)*** myopia exceeding -6,0 dioptres; ***(iii)*** astigmatism exceeding 2,0 dioptres; ***(iv)*** anisometropia exceeding 2,0 dioptres; provided that optimal correction has been considered and no significant pathology is demonstrated.	**Initial applicants who do not meet the requirements in (ii), (iii) and (iv)** Assessment should be conducted by, or under the supervision of, an ophthalmologist and ensure that there is no underlying pathology or other ocular abnormalities. Monocular visual acuities shall be 6/6 or better. Assessment shall include: **1)** Dilated, binocular, indirect ophthalmoscopy in cases of myopia exceeding –6,0 dioptres. **2)** Corneal topography at initial assessment (and at renewal where there is significant change in refraction) in cases of astigmatism exceeding 2,0 dioptres. **Applicants with excess hypermetropia** may be assessed by the Medical Assessor on an individual basis and should be assessed by a consultant aviation ophthalmology advisor. Monocular visual acuities shall be 6/6 or better. Assessment shall include: **1)** Anterior angle assessment, with gonioscopy where clinically indicated, to assess the risk of closed angle glaucoma attack. **2)** Fusional reserve testing to ensure there are no adverse prism effects from spectacles. **3)** Exclusion of underlying pathology or other ocular abnormalities.
	(4) If anisometropia exceeds 3,0 dioptres, contact lenses should be worn.	**Anisometropia in excess of 3,00 D** Where anisometropia in excess of 3,00 D is found at revalidation, a pilot who does not wear contact lenses should be referred to a local contact lens practitioner for suitability assessment. A

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
		report should be provided after contact lens trial to either confirm successful wearing times and visual acuities or to specify why contact lens wear was not successful.
	(5) If the refractive error is +3,0 to +5,0 or -3,0 to -6,0 dioptres, there is astigmatism or anisometropia of more than 2 dioptres but less than 3 dioptres, a review should be undertaken 5 yearly by an eye specialist. ***(6)*** If the refractive error is greater than -6,0 dioptres, there is more than 3,0 dioptres of astigmatism or anisometropia exceeds 3,0 dioptres, a review should be undertaken 2 yearly by an eye specialist. ***(7)*** In cases ***(5)*** and ***(6)*** above, the applicant should supply the eye specialist's report to the AME. The report should be forwarded to the licensing authority as part of the medical examination report. All abnormal and doubtful cases should be referred to an ophthalmologist.	**Class 1 Eye Examination Periodicity** In cases of known pathology / abnormality, if there is no change to the condition and the visual standards are met, the indication for and periodicity of further assessment by an ophthalmologist can be determined by the Medical Assessor.
(2) Voor een medisch certificaat klasse 2: ***(i)*** een routine oogonderzoek maakt deel uit van het eerste en alle volgende onderzoeken voor verlenging en hernieuwde afgifte; en ***(ii)*** een uitgebreid oogonderzoek wordt uitgevoerd indien klinisch geïndiceerd.	**Class 2** ***(a)*** *Eye examination* ***(1)*** At each aero-medical revalidation examination an assessment of the visual fitness should be undertaken and the eyes should be examined with regard to possible pathology. Conditions which indicate further ophthalmological examination include, but are not limited to, a substantial decrease in the uncorrected visual acuity, any decrease in best corrected visual acuity and/or the occurrence of eye disease, eye injury, or eye surgery. ***(2)*** A the initial assessment the examination should include: ***(i)*** history; ***(ii)*** visual acuities – near, intermediate and distant vision (uncorrected and with best optical correction if needed); ***(iii)*** examination of the external eye, anatomy, media and fundoscopy; ***(iv)*** ocular motility; ***(v)*** binocular vision; ***(vi)*** colour vision and visual fields; ***(vii)*** further examination on clinical indication. ***(3)*** At the initial assessment the applicant should submit a copy of the recent spectacle prescription if visual correction is required to meet the visual requirements.	**Eye examination** Ophthalmology examination reports and information are included as an attachment to this document. **At the initial assessment** All initial applicants who use optical correction should submit the result of a recent spectacle prescription.

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
	(c) *Routine eye examination* A routine eye examination should include: ***(1)*** history; ***(2)*** visual acuities – near, intermediate and distant vision (uncorrected and with best optical correction if needed); ***(3)*** examination of the external eye, anatomy, media and fundoscopy; ***(4)*** further examination on clinical indication.	
(c) De gezichtsscherpte op afstand, met of zonder correctie, moet:		
(1) in het geval van medische certificaten klasse 1, 6/9 (0,7) of beter zijn in elk oog en de gezichtsscherpte van beide ogen 6/6 (1,0) of beter;	**Class 1** ***(e)*** *Uncorrected visual acuity* No limits apply to uncorrected visual acuity.	
(2) in het geval van medische certificaten klasse 2, 6/12 (0,5) of beter zijn in elk oog en de gezichtsscherpte van beide ogen 6/9 (0,7) of beter. Een aanvrager met substandaard gezichtsvermogen in een oog kan na een bevredigende oogheelkundige beoordeling in overleg met de autoriteit die het bewijs van bevoegdheid afgeeft als geschikt worden beoordeeld;	**Class 2** ***(c)*** *Visual acuity* In an applicant with amblyopia, the visual acuity of the amblyopic eye should be 6/18 (0,3) or better. The applicant may be assessed as fit, provided the visual acuity in the other eye is 6/6 (1,0) or better, with or without correction, and no significant pathology can be demonstrated.	
(3) aanvragers van een eerste medisch certificaat klasse 1 met substandaard gezichtsvermogen in een oog worden als ongeschikt beoordeeld. Bij verlenging moeten aanvragers met verworven substandaard gezichtsvermogen in een oog worden doorverwezen naar de autoriteit die het bewijs van bevoegdheid afgeeft en kunnen als geschikt worden beoordeeld indien het onwaarschijnlijk is dat het de veilige uitoefening van de rechten van het gehouden bewijs van bevoegdheid verstoort.	**Class 1** ***(f)*** *Substandard vision* ***(1)*** Applicants with a reduced central vision one eye may be assessed as fit if the binocular visual field is normal and the underlying pathology is acceptable according to ophthalmological assessment. A satisfactory medical flight test and multi-pilot limitation are required. ***(2)*** An applicant with acquired substandard vision in one eye may be assessed as fit with a multi-pilot limitation if: ***(i)*** the better eye achieves distant visual acuity of 6/6 (1,0), corrected or uncorrected; ***(ii)*** the better eye achieves intermediate visual acuity of N14 and N5 for near; ***(iii)*** in the case of acute loss of vision in one eye, a period of adaption time has passed from the known point of visual loss, during which the applicant should be assessed as unfit; ***(iv)*** there is no significant ocular pathology; and	**Substandard vision** Local ophthalmologist reports and an assessment with a consultant aviation ophthalmology advisor will be required before a fit assessment can be made. Class 1 applicants with substandard vision should be referred to the Medical Assessor for further advice about the type of Medical Flight Test to be undertaken.

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
	(v) a medical flight test is satisfactory. ***(3)*** An applicant with a visual field defect may be assessed as fit if the binocular visual field is normal and the underlying pathology is acceptable to the licensing authority. **Class 2** ***(d)*** *Substandard vision* ***(1)*** Reduced stereopsis, abnormal convergence not interfering with near vision and ocular misalignment where the fusional reserves are sufficient to prevent asthenopia and diplopia may be acceptable. ***(2)*** An applicant with substandard vision in one eye may be assessed as fit subject to a satisfactory flight test if the better eye: ***(i)*** achieves distant visual acuity of 6/6 (1,0), corrected or uncorrected; ***(ii)*** achieves intermediate visual acuity of N14 and N5 for near; ***(iii)*** has no significant pathology. ***(3)*** An applicant with a visual field defect may be considered as fit if the binocular visual field is normal and the underlying pathology is acceptable.	**Substandard vision** Flowchart – Substandard vision in one eye certification (class 2 only)
(d) Een aanvrager moet in staat zijn een N5-kaart (of equivalent) te lezen op 30-50 cm afstand en een N14-kaart (of equivalent) op 100 cm afstand, met correctie, indien voorgeschreven.		
(e) Van aanvragers van een medisch certificaat klasse 1 wordt verlangd dat ze normale gezichtsvelden en normale binoculaire functie hebben.		EASA MED.B.070 (e) states that "Applicants for a Class 1 medical certificate shall be required to have normal fields of vision and normal binocular function". For the purpose of clarity the CAA defines "normal fields of vision" as follows: 1. Monocularly, on Esterman field testing, there should be no more than a single missed spot within 20 degrees vertically from the primary position and 30 degrees horizontally from the primary position. There should be no confluent area of missed spots outside this area. 2. Additionally, binocularly, on Esterman field testing there should be no more than 4 missed spots, of which not more than 2 shall be contiguous in the visual field defined horizontally by 60 degrees either side of the primary position and vertically by 20 degrees above the primary position and 30 degrees below the primary position. Normal binocular function is defined as any individual with a degree of binocular lock. This would include individuals with

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
		normal binocular single vision and those individuals with well-adapted heterotropias, who are not at risk of diplopia and have adopted a suppression scotoma when both eyes are open.
(f) Aanvragers die een oogoperatie hebben ondergaan, kunnen als geschikt worden beoordeeld mits een oogheelkundige evaluatie een bevredigend resultaat oplevert.	**Class 1** ***(i)*** *Eye surgery* The assessment after eye surgery should include an ophthalmological examination. ***(1)*** After refractive surgery, a fit assessment may be considered, provided that: ***(i)*** the better eye achieves distant visual acuity of 6/6 (1,0), corrected or uncorrected; ***(ii)*** the better eye achieves intermediate visual acuity of N14 and N5 for near; ***(iii)*** in the case of acute loss of vision in one eye, a period of adaption time has passed from the known point of visual loss, during which the applicant should be assessed as unfit; ***(iv)*** there is no significant ocular pathology; and ***(v)*** a medical flight test is satisfactory. ***(2)*** Cataract surgery entails unfitness. A fit assessment may be considered after 3 months. ***(3)*** Retinal surgery entails unfitness. A fit assessment may be considered after 6 months after successful surgery. A fit assessment may be acceptable earlier after retinal laser therapy. Follow-up may be required. ***(4)*** Glaucoma surgery entails unfitness. A fit assessment may be considered 6 months after successful surgery. Follow-up may be required. ***(5)*** For ***(2)***, ***(3)*** and ***(4)*** above, a fit assessment may be considered earlier if recovery is complete. **Class 2** ***(e)*** *Eye surgery* ***(1)*** The assessment after eye surgery should include an ophthalmological examination. ***(2)*** After refractive surgery a fit assessment may be considered provided that there is stability of refraction, there are no postoperative complications and no increase in glare sensitivity. ***(3)*** After cataract, retinal or glaucoma surgery a fit assessment may	Report specifications – Ophthalmic

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
	be considered once recovery is complete.	
(g) Aanvragers met een klinische diagnose van keratoconus kunnen als geschikt worden beoordeeld na een bevredigend onderzoek door een oogarts. Aanvragers van een medisch certificaat klasse 1 worden doorverwezen naar de autoriteit die het bewijs van bevoegdheid afgeeft.	**Class 1** ***(g)*** *Keratoconus* Applicants with keratoconus may be assessed as fit if the visual requirements are met with the use of corrective lenses and periodic review is undertaken by an ophthalmologist.	**Keratoconus** A CCL limitation ('Correction by means of Contact Lenses only') should be applied in cases of keratoconus where the visual requirements are met only with contact lenses, rather than spectacles. **Eye surgery** Report specifications – Ophthalmic
(h) Aanvragers met: ***(1)*** astigmatisme; ***(2)*** anisometropie; kunnen als geschikt worden beoordeeld na een oogheelkundige evaluatie met bevredigend resultaat.	**Class 1** ***(h)*** *Heterophoria* Applicants with heterophoria (imbalance of the ocular muscles) exceeding: ***(1)*** *at 6 metres:* 2,0 prism dioptres in hyperphoria, 10,0 prism dioptres in esophoria, 8,0 prism dioptres in exophoria and ***(2)*** *at 33 centimetres:* 1,0 prism dioptre in hyperphoria, 8,0 prism dioptres in esophoria, 12,0 prism dioptres in exophoria should be assessed as unfit. The applicant should be reviewed by an ophthalmologist and if the fusional reserves are sufficient to prevent asthenopia and diplopia a fit assessment may be considered.	
(i) Aanvragers met diplopie worden als ongeschikt beoordeeld.		
(j) Brillen en contactlenzen. Indien voldoende visuele functie uitsluitend met gebruikmaking van correctie wordt bereikt: ***(1)*** ***(i)*** voor verziendheid moeten brillen of contactlenzen worden gedragen tijdens het uitoefenen van de rechten verbonden aan het/de toepasselijke bewijs/bewijzen van bevoegdheid; ***(ii)*** voor bijziendheid moet een daartoe bestemde bril beschikbaar worden gehouden tijdens de uitoefening van de rechten verbonden aan het bewijs van bevoegdheid; ***(2)*** een even sterk corrigerende reservebril moet klaar liggen voor direct gebruik tijdens het uitoefenen van de voorrechten verbonden aan het/de toepasselijke bewijs/bewijzen van bevoegdheid;	**Class 1 & 2** ***(j)***/***(f)*** *Correcting lenses* Correcting lenses should permit the licence holder to meet the visual requirements at all distances.	**Class 1 & 2 - Correcting lenses** Information – Presbyopia correction guidance Information – Guidance on spectacle frames and lens choise Information – Guidance on contact lenses

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
(3) de correctie moet optimale visuele functie bieden, goed verdragen worden en geschikt zijn voor het vliegen; ***(4)*** indien contactlenzen worden gedragen, moeten deze bestemd zijn voor verziendheid, en monofocaal, niet-getint en goed te verdragen zijn; ***(5)*** aanvragers met een grote brekingsafwijking dienen contactlenzen of brillenglazen met hoge index te gebruiken; ***(6)*** er mag niet meer dan één bril worden gebruikt om aan de visuele eisen te voldoen; ***(7)*** orthokeratologische lenzen mogen niet worden gebruikt.		

Report specifications – Ophthalmic

The following subheadings are for guidance purposes only and should not be taken as an exhaustive list.

1. **Diagnoses**

2. **History**
   - Presenting symptoms
   - Nature of condition, circumstances surrounding onset, precipitating factors
   - Other relevant medical history

3. **Examination and investigation findings**
   - Clinical findings
     - Uncorrected visual acuities (R,L, both) – distant (6 m), intermediate (1 m) and near (30-50 cm)
     - Corrected visual acuities (R,L, both) – distant (6 m), intermediate (1 m) and near (30-50 cm)
     - Current refractive error
     - Impairment or loss of function
     - Clinical findings (as applicable)
       1. Retinal examination
       2. Slit lamp examination
       3. Fusion ability (state method used in examination)
     - Visual fields
       1. Standard Automated Perimetry
   - Surgical reports (see below)
   - Other relevant procedures and investigation reports

4. **Treatment**
   - Past, recent and ongoing treatment must be detailed
   - Ocular and other current and recent past medications (name, dose, start and finish dates, frequency)

5. **Follow up and further investigations/referrals planned or recommended (as applicable)**
   - Anticipated follow up/frequency of clinical reviews and investigations
   - Degree of recovery from the condition

6. **Clinical implications**
   - Any concerns regarding disease progression, treatment compliance or risk of sudden incapacity

Please refer to the next page for details of further information required in certain specified conditions.

Ocular Hypertension, Glaucoma and Pigment Dispersion Syndrome

- Visual fields
- Optic disc assessment
- Intra ocular pressures
- Anterior angle assessment

Keratoconus

- Specify treatment (spectacles, contact lens supervision, cross linking, corneal transplant)
- Corneal topographies (colour copy)

Vascular Conditions (Artery or vein occlusions, Amaurosis Fugax)

- Visual fields
- Intra ocular pressures
- Cardiovascular review include
    - HT, erythrocyte sedimentation rate, Trombophilia screen
    - Temporal artery biopsy, carotid Doppler, echocardiogram

Phorias and Tropias

- Orthoptic report required

Eye Surgery Reports (from ophthalmic surgeon who carried out surgery)

- Date of surgery
- Intra or post operative complications
- Comment on relevant clinical findings
    - Ocular discomfort or diplopia
    - Corneal haze or other median opacities
    - Symptoms of glare, photophobia or other dysphotopic symptoms
    - Night vision issues

Cataract Surgery

- Type of surgery (phacoemulsification or extracapsular)
- Type of intraocular lens implant used
- Post capsular thickening

Refractive Surgery and Collagen Cross Linking

- Type of surgery (LASIK, LASEK, PRK, Collagen Cross Linking, other)
- Pre-operative refractions
- Post-operative refractions
    - Months 2 and 3 following LASIK
    - Months 3 and 6 following LASEK
- Glare sensitivity
- Corneal topographies (Collagen Cross Linking)
- Mesopic Contrast Sensitivity

Retinal Detachment / Par Planus Vitrectomy – Laser Retinopexy

- Type of surgery (gas or silicone oil)
- Residual field defect
- Risk of recurrence

Follow-up reports, to include visual field test results are required for many eye conditions in order to maintain medical certification.

Information – Eye conditions certification

Conjunctivitis

May require topical medication (e.g. fusidine), but it should not have an impact certification unless it causes a reduction of vision or discomfort. Note that some topical eye ointments may cause reduced vision immediately after insertion and so they should not be used just before or during flight.

Minor eyelid infections

Minor eyelid infections such as chalazion (stye) do not normally impact on certification unless causing discomfort or a reduction in vision due to ptosis or induced astigmatism. Topical medications should not have an impact on certification unless it results in a reduction of vision or discomfort. Note that some topical eye ointments may cause reduced vision immediately after insertion and so they should not be used just before or during flight.

Blepharitis

Blepharitis is usually a chronic condition and should be managed to ensure no symptoms (eye rubbing, dry eye) occur during flight.

Keratitis / Anterior Uveitis

Should be declared unfit on diagnosis. Recertification is considered once the condition resolved and the applicant is off medication (or low dose topical therapy). A consultant report is required regarding diagnosis and follow-up. Class 1 holders may be required to undertake an assessment with a consultant aviation ophthalmology adviser, particularly if residual scarring is present. Recurrent anterior uveitis should be investigated for systemic inflammatory conditions (such as ankylosing spondylitis).

Trauma

Eye injuries requiring ophthalmological assessment should be reported to the AME (Class 2) or Medical Assessor (Class 1). The pilot may be made unfit whilst recovering, depending on the individual case. Class 1 holders may be required to undertake assessment with a consultant aviation ophthalmology adviser. Pilots with minor corneal abrasions should not fly with any discomfort or disturbance to vision, with or without treatment.

Pupil Abnormalities

The pilot should be made unfit if there is recent onset and should be referred for further assessment by an ophthalmologist. Recertification is dependent on need for other investigations related to any underlying cause identified, and no symptoms (photophobia/difficulties with night vision).

Cataract

Pilots can be certificated provided the vision standards are met and is asymptomatic (no glare, haloes etc). The pilot will be certificated as unfit if symptomatic or below vision standards with best correction. Certification can be reconsidered following successful cataract surgery with an intraocular lens implant (see eye surgery guidance).

Posterior Uveitis

If posterior uveitis is active, the applicant should be declared as unfit. Certification can be reconsidered once treated provided vision and visual field standards are met. Consideration should be given to any underlying cause (bowel or renal disease, sarcoidosis, parasitic infection). Ophthalmological reports are required, and class 1 holders may be required to undertake assessment by a consultant aviation ophthalmology adviser.

Retinal Detachment

Pilot will be unfit on diagnosis of retinal detachment. Consultant reports will be required. Recertification can be considered following successful treatment. Recertification following surgery can be assessed individually. Note retinal tears treated successfully with laser can be reconsidered for certification once confirmation that no further treatment is required. Visual fields are required and should be normal. In complex cases including visual field loss, certification can be considered, following assessment by a consultant aviation ophthalmology adviser, for class 1 with OML provided binocular visual field normal. Class 2 cases with significant field loss should follow the substandard vision in one eye guidance.

Central Serous Retinopathy
Pilot is made unfit on diagnosis. Recertification can be considered when the condition is resolved or when no further improvement to vision is expected. Pilot must be asymptomatic and adapted to any vision loss. In cases of significant visual acuity loss, certification can be considered using the substandard vision in one eye guidance.

Acquired Disorders of the Macula
Retinal drusen should be monitored. In case of any distortion of central vision or reduction of visual acuity below standards, the pilot should be made unfit. Ophthalmological reports are required. Recertification on individual basis but the pilot must be asymptomatic and adapted to any vision loss. In cases of significant visual acuity loss, certification can be considered using the substandard vision in one eye guidance.

Optic Disc Drusen
Certificated as fit provided visual fields are acceptable. Requires submission of periodic (normally annual) field tests for ongoing certification.

Glaucoma
Initial diagnosis should be reported by the pilot to their AME who should then manage/advise the pilot appropriately. Class 1 cases should be referred onward to the Medical Assessor and class 2 cases managed by the AME in consultation with the Medical Assessor. Routine follow up reports including visual field results will be required. If there is significant loss of field in one eye, certification can be considered using the substandard vision in one eye guidance provided the binocular visual field is normal. In cases of glaucoma in both eyes, binocular visual fields shall be normal. Pilots undergoing glaucoma surgery will be made unfit. Recertification is on an individual assessment basis. Selective laser trabeculoplasty can, if successful, be recertificated subject to a satisfactory specialist report. Assessment by a consultant aviation ophthalmology adviser may be required for class 1 pilots following surgery for glaucoma, where pilots have significant visual field loss or aggressive glaucoma.

Information – Retinal arterial disorders certification

(includes: retinal artery occlusion, ischaemic optic neuropathy and amaurosis fugax)

Pilots with arterial vascular disease affecting the eye should be made unfit. The subsequent aeromedical fitness assessment needs to take into account the both the effect on visual functions and the cardiovascular incapacitation risk.

Arterial vascular disease affecting the eye reduces visual acuity and field of vision in the affected eye, sometimes permanently.

It is important to identify disease due to emboli from the left side heart and carotids, as this carries a higher cardiovascular risk. Infective endocarditis and the systemic vasculitides, including giant cell (temporal) arteritis and thrombophilia must all be excluded, as these conditions have their own treatment protocols and aeromedical implications.

Arterial vascular disease affecting the eye is usually associated with an increased cardiovascular mortality. Cardiovascular risk factors must be identified and managed before recertification.

Class 1 & 2 certification

Assessment of visual function

A report must be obtained from the treating consultant ophthalmologist, to include:

- Visual acuity in each eye separately
- Visual field results in each eye separately and together

If the pilot develops substandard vision in one eye following a vascular event then they should be assessed in accordance with the substandard vision in one eye guidance.

Assessment of cardiovascular risk

All pilots must undergo a cardiovascular review with a consultant cardiologist and submit a report to their AME (or if class 1 to the Medical Assessor if referred by their AME) to include:

- HT and erytrocyte sedimentation rate
- Results of temporal artery biopsy if performed
- Carotid Doppler scan and echocardiogram
- Confirmation that blood pressure is stable (ideally with a 24-hour blood pressure recording)
- Assessment and appropriate management of other cardiovascular risk factors
- Exercise ECG, symptom limited and performed in accordance with the Bruce protocol
- Thrombophilia screen

Aeromedical disposal

Class 1

If both ophthalmic and cardiological assessments are satisfactory, the pilot can be assessed by the Medical Assessor as fit with an OML applied to the certificate. Abnormal findings may require further investigation/assessment.

Class 2

If ophthalmic and cardiological assessments are satisfactory, an unrestricted fit assessment can be made. When there are field defects and/or cardiovascular risks, an OSL may need to be applied to the certificate. This can be done by an AeMC or AME in consultation with the Medical Assessor.

Information – Retinal vein occlusion (RVO) certification

Pilots with RVO should be declared as unfit. The subsequent aeromedical fitness assessment needs to take into account both the effect on visual function and the cardiovascular incapacitation risk.

RVO reduces visual acuity and field of vision in the affected eye, sometimes permanently. It is usually associated with an increased cardiovascular mortality. High blood pressure is a cardinal risk factor for RVO and satisfactory blood pressure control is therefore essential before recertification.

Class 1 & 2 certification

Assessment of visual function

A report must be obtained from the treating ophthalmologist, to include:

- Visual acuity in each eye separately
- Visual field results in each eye separately and together
- Evidence that intraocular pressure is stable

If the pilot develops substandard vision in one eye following a vascular event then they should be assessed:

a) For class 1, in conjunction with the Medical Assessor. Review with a specialist advisor in aviation ophthalmology is likely to be required.
b) For class 2, in accordance with the substandard vision in one eye guidance.

Assessment of cardiovascular risk

All pilots must undergo a cardiovascular review with a consultant cardiologist to include:

- Confirmation that blood pressure is stable (ideally with a 24-hour blood pressure recording)
- Assessment and appropriate management of other cardiovascular risk factors
- Exercise ECG, symptom limited and performed in accordance with the Bruce protocol
- Thrombophilia screen

Aeromedical disposal

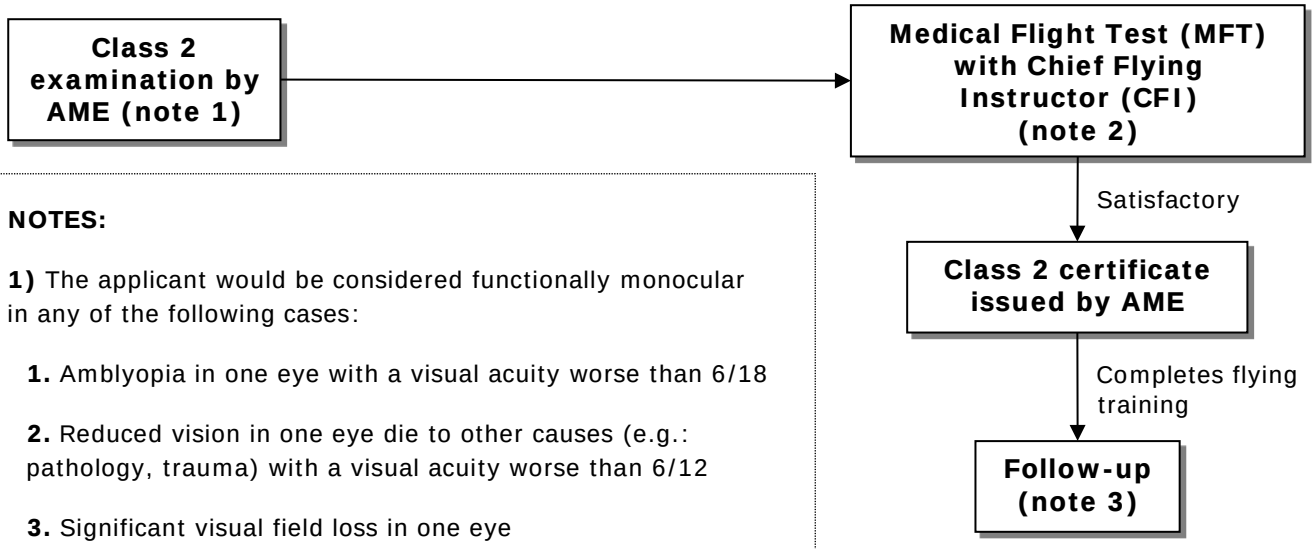
Class 1

If both ophthalmic and cardiological assessments are satisfactory, the pilot can be assessed by the Medical Assessor as fit with an OML applied to the certificate. Abnormal findings may require further investigation/assessment.

Class 2

If ophthalmic and cardiological assessments are satisfactory, an unrestricted fit assessment can be made. When there are field defects and/or cardiovascular risks, an OSL may need to be applied to the certificate. This can be done by an AeMC or AME in consultation with the Medical Assessor.

Flowchart – Substandard vision in one eye certification (class 2 only)



NOTES:

1) The applicant would be considered functionally monocular in any of the following cases:

1. Amblyopia in one eye with a visual acuity worse than 6/18

2. Reduced vision in one eye die to other causes (e.g.: pathology, trauma) with a visual acuity worse than 6/12

3. Significant visual field loss in one eye

Where functionally monocular, the AME can consider certification if, at the time of the initial examination, the better eye achieves the following:

1. Distant VA (uncorrected or corrected) of 6/6 or better.

2. No significant ocular pathology and risk of visual incapacitation (<1% per annum).

AND the applicant undertakes a satisfactory Medical Flight Test (form can be found at note 2).

In cases of acute onset, unilateral visual loss, a period of adaption time (usually 6-12 months) must have passed from the known point of visual loss.

2) Form for Medical Flight Tests available as attachment to this document.

3) Any further deterioration in visual acuities requires ophthalmological assessment and repeat MFT.

Information – Presbyopia correction guidance

Pilots have to change their gaze frequently between objects at near, intermediate and far distances. With age, the ability of the eye to focus on near tasks decreases. This is known as presbyopia and the individual requires a prescription for near tasks. If a distance prescription is also required, some form of optical correction is needed which incorporates focus for both distance and near (and also intermediate) vision.

Spectacles

All types of correction (bifocal, progressive or trifocal) are acceptable provided they are well tolerated. Bifocals will offer distance and near correction with the near portion being a distinct segment within the lower part of the lens. There are different bifocal types: D-segment are the most prevalent and these are acceptable. Executive bifocals (where the reading portion covers the whole width of the lens) are less ideal, and are not recommended for helicopter pilots.

Progressive lenses (or varifocals) change in prescription gradually from the distance part of the lens at the top, to the near portion of the lens towards the bottom. These lenses will also have an area of intermediate focus in-between the distance and near portions. The other type of lens available with an intermediate prescription is a trifocal lens. These are usually similar in appearance to bifocals but with an extra segment on top of the near portion. Occasionally the intermediate portion is incorporated into the top of the lens, with the reading portion at the bottom of the lens and the distance area in the centre. This may be useful for viewing overhead panels.

Contact Lenses

See Information – Guidance on contact lenses.

Intra-Ocular Lens Implants (IOLs)

All IOLs must be monofocal.

Multifocal IOLs are not acceptable. These lenses are available however they function very differently to multifocal spectacle lenses which have distinct separate areas for different focal lengths. With multifocal spectacle lenses, the user can use eye movements to view through a different portion of the lens and consequently a different focal length. A multifocal IOL employs a type of simultaneous viewing where distance and near focus are presented and the subject uses the part of the lens which is least out of focus for the task. A poorer quality of image is received at the retina and although high contrast visual acuities may be unaffected, contrast sensitivity, particularly in mesopic conditions, is often affected.

There have been recent developments with ‘accommodating’ IOLs which, although they still sit in the capsular bag, are able to move slightly with ciliary muscle action. This enables some accommodation, but not enough to negate the need for reading glasses. The optics of these lenses should not affect visual acuity or contrast sensitivity and may be acceptable for certificatory use following aeromedical assessment.

Information – Guidance on spectacle frames and lens choise

The following is intended to offer guidance on the type of spectacle frame and lenses recommended for use in the aviation environment.

Frame choice

All frames should be well fitting and comfortable. The choice of frame should minimise any effects on peripheral vision. The eye size should not be too small and a frame with a reasonably thin front (e.g. metal) and sides should be used. However, for those pilots that may have to use emergency oxygen, such as commercial jet airline pilots, the sides of the spectacles need to be strong enough to be placed under the oxygen mask straps.

For presbyopic pilots with good uncorrected distance vision, reading glasses should be in a ½ eye (look-over) style of frame. A full frame reading correction is unacceptable.

Lens Choice

The vast majority of spectacle lenses prescribed are made from a plastic material. These have a weight and a safety advantage over glass lenses. A hard coating is always recommended. Anti-reflection coatings reduce the intensity of reflections from the lens surfaces and allow a higher percentage of light to pass through the lens. These are compatible with aviation use.

High index lenses are recommended for stronger spectacle prescriptions.

For further information on bifocal and varifocal lenses, please see Information – Presbyopia correction guidance.

Note that all pilots requiring corrective lenses must have at least one pair of untinted spectacles available whilst exercising the privileges of their licence.

Information – Guidance on contact lenses

Contact lenses have an optical advantage over glasses. The change of image size is minimised compared to glasses. Ring scotomas (area of visual field missed) caused by spectacle frame and lenses are eliminated as are peripheral aberrations induced by a spectacle lens.

However a pilot wishing to use contact lenses for flying will need to ensure that the lenses can be comfortably worn on the ground before using them in the cockpit. As a guide, a minimum wearing time of 8 hours a day for 5 days a week consistently for least one month is acceptable. It is important that the wearing times do not impact on the pilot's visual acuity, comfort or eye health. All contact lens wearing pilots are expected to attend for regular check-ups as advised by their contact lens practitioners.

It should be noted that some successful contact lens wearers are not able to use their lenses in flight. This may be due to dehydration of the lens, altering lens parameters or other factors.

All contact lens materials (gas permeable, soft, soft disposable, hard) are acceptable for aviation use provided they are well tolerated. Optimum correction must be achieved. The correction of astigmatism should always be considered for soft contact lens wearers (toric lenses). Silicon hydrogels (a type of soft disposable contact lens material) should be considered for aviation use due to their low water content and high oxygen transmission.

All contact lenses must be for distance only correction.

The following types of contact lens correction are not acceptable:

Monovision

This is where the dominant eye is fully corrected for distance and the non-dominant eye is corrected for near. The distance visual acuity in the 'reading eye' will often fall below the appropriate acuity standard. It can interfere with depth perception and does not give optimum distance vision.

Multifocal (bifocal / varifocal)

Unlike spectacle lenses where the user can use eye movements to view through a different portion of the lens and consequently a different focal length, a contact lens will move with eye movement. This means that a different optical system must be applied to enable the viewing of more than one focal length. There are several designs of multifocal contact lenses, however they will tend to have a poorer optical quality and cause potential loss of visual acuity and contrast sensitivity. Some designs are also problematic in bright light conditions. Multifocal contact lenses are not acceptable for aviation use.

Cosmetic coloured lenses

These have either a tint or an iris pattern to change the apparent colour of the user's eyes. More recent designs include themed images such as slit pupil 'cat's eyes'. Coloured lenses are not compatible with aviation use due to potential visual disturbances in lower light levels where the pupil widens beyond the central clear zone of the lens. Some lenses also have a high risk of inducing corneal hypoxia in flight due to poor oxygen transmissibility.

Orthokeratology (or Ortho K) lenses

These are 'reverse geometry' lenses designed to remould the front corneal surface. They are often worn at night and removed during the day. Any change to the corneal shape (and hence improvement to unaided vision) tends to be lost during the day and wearers of these lenses are unable to have optimum vision throughout the day. For this reason, this type of lens is not acceptable.

X-chrom or Chromagen lenses

These are coloured lenses which are occasionally worn by people with colour vision deficiencies to aid them in a particular area where they may confuse certain colours. The lenses do not correct a colour vision deficiency but merely move the colour confusion to a different area of the colour spectrum. Due to the significant interference and loss of colour discrimination induced, these are not acceptable for aviation use.

MED.B.075 – Kleurwaarneming

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
(a) Van aanvragers wordt verlangd dat ze kunnen aantonen in staat te zijn gemakkelijk de kleuren waar te nemen die nodig zijn voor de veilige uitvoering van hun taken.	**Class 1 & 2** ***(a***) At revalidation, colour vision should be tested on clinical indication.	
(b) Onderzoek ***(1)*** Aanvragers moeten voor de eerste afgifte van een medisch certificaat de Ishiharatest met goed gevolgd afleggen.	**Class 1 & 2** ***(b)*** The Ishihara test (24 plate version) is considered passed if the first 15 plates, presented in a random order, are identified without error.	Ishihara test to be conducted as per manufacturer's instructions: test distance 75cm with plane of plates at right angles to line of vision under daylight or daylight simulated light (usually colour temperature around 6500K) allowing 3 seconds per plate for response. The plates should be presented to the applicant in a random order. Ishihara plates should be updated periodically or if showing any signs of fading.
(2) Aanvragers die de Ishiharatest niet met goed gevolg afleggen, moeten verdere kleurwaarnemingtests doen om vast te stellen of ze kleurveilig zijn.	**Class 1 & 2** ***(c)*** Those failing the Ishihara test should be examined either by: ***(1)*** anomaloscopy (Nagel or equivalent). This test is considered passed if the colour match is trichromatic and the matching range is 4 scale units or less; or by ***(2)*** lantern testing with a Spectrolux, Beynes or Holmes-Wright lantern. This test is considered passed if the applicant passes without error a test with accepted lanterns.	Colour Assessment and Diagnosis (CAD) test is also accepted if there are any errors on the first 15 plates. Part MED.A.010 defines colour safe as 'the ability of an applicant to readily distinguish the colours used in air navigation and correctly identify aviation coloured lights. The CAD test will only pass as colour safe, those individuals who perform as well as individuals with colour vision in the normal range on the most difficult aviation colour vision tasks.
(c) In het geval van medische certificaten klasse 1, moeten aanvragers normale waarneming van kleuren hebben of kleurveilig zijn. Aanvragers die aanvullende kleurwaarnemingstests niet met goed gevolgd afleggen, worden als ongeschikt beoordeeld. Aanvragers van een medisch certificaat klasse 1 worden doorverwezen naar de autoriteit die het bewijs van bevoegdheid afgeeft.		If the Medical Assessor is to consider the result of a lantern test, the report should include clear detail of the protocol used, responses made and documentation of the calibration/maintenance of the equipment.
(d) In het geval van medische certificaten klasse 2, worden de vliegrechten beperkt tot uitsluitend overdag, wanneer de aanvrager geen voldoende waarneming van kleuren heeft.		

MED.B.080 – Keel-, neus- en ooraandoeningen

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
(a) Aanvragers mogen geen afwijking van de functie van de oren, neus, sinussen of keel, waaronder mondholte, tanden en larynx, of enige actieve pathologische aandoening, aangeboren of verworven, acuut of chronisch, of eventuele restverschijnselen van operaties of trauma hebben die de veilige uitoefening van de rechten verbonden aan de toepasselijke vergunning(en) waarschijnlijk verstoort.		Report specifications – Otorhinolaryngology
(b) Het gehoor moet voldoende zijn voor de veilige uitoefening van de rechten verbonden aan het/de toepasselijke bewijs/bewijzen van bevoegdheid.		
(c) *Onderzoek* ***(1)*** Het gehoor wordt bij alle onderzoeken getest. ***(i)*** In het geval van medische certificaten klasse 1 en medische certificaten klasse 2, wanneer een bevoegdverklaring instrumentvliegen aan het/de bewijs van bevoegdheid moet worden toegevoegd, moet het gehoor bij het eerste onderzoek met zuiveretoonaudiometrie worden getest en, bij daaropvolgende onderzoeken voor verlenging en hernieuwde afgifte, iedere vijf jaar tot de leeftijd van 40 en iedere twee jaar daarna. ***(ii)*** Wanneer eerste aanvragers worden getest meet een zuivere-toonaudiometer, mogen zij geen gehoorverlies hebben van meer dan 35 dB bij een van de frequenties 500, 1000 of 2000 Hz, of meer dan 50 dB bij 3000 Hz, in elk oor. Aanvragers van een verlenging of hernieuwde afgifte met groter gehoorverlies moeten aantonen dat ze een voldoende functioneel hoorvermogen hebben. ***(iii)*** Aanvragers met hypoacusis moeten aantonen dat ze een voldoende functioneel hoorvermogen hebben. ***(2)*** Een uitgebreid keel-, neus- en ooronderzoek wordt voor de eerste verstrekking van een medisch certificaat klasse 1 uitgevoerd en daarna periodiek indien klinisch aangewezen.	**Class 1** ***(a)*** *Hearing* ***(1)*** The applicant should understand correctly conversational speech when tested with each ear at a distance of 2 metres from and with the applicant's back turned towards the AME. ***(2)*** The pure tone audiogram should cover the 500, 1000, 2000 and 3000 Hz frequency thresholds. ***(3)*** An applicant with hypoacusis should be referred to the licensing authority. A fit assessment may be considered if a speech discrimination test or functional flight deck hearing test demonstrates satisfactory hearing ability. A vestibular function test may be appropriate. ***(4)*** If the hearing requirements can only be met with the use of hearing aids, the hearing aids should provide optimal hearing function, be well tolerated and suitable for aviation purposes. **Class 2** ***(a)*** *Hearing* ***(1)*** The applicant should understand correctly conversational speech when tested with each ear at a distance of 2 metres from and with the applicant's back turned towards the AME. ***(2)*** An applicant with hypoacusis may be assessed as fit if a speech discrimination test or functional cockpit hearing test demonstrates satisfactory hearing ability. An applicant for an instrument rating with hypoacusis	**Initial class 1 with Hearing Loss** Initial applicants shall not have a hearing loss of more than 35 dB at any of the frequencies 500, 1.000 or 2.000 Hz, or more than 50 dB at 3.000 Hz, in either ear separately. **Revalidation / renewal class 1 with Hearing Loss** For only revalidation or renewal, greater hearing loss can be recertificated following demonstrated satisfactory functional hearing ability. **Speech discrimination test or functional hearing test** This test should be based on the following ICAO guidance: Hearing loss greater than the requirements may be acceptable provided that there is normal hearing performance against a background noise that reproduces or simulates the masking properties of the flight deck noise in the cockpit upon speech and beacon signals. It is important that the background noise be representative of the noise in the cockpit of the type of aircraft for which the applicant's licence and ratings are valid. The frequency composition of the background noise is defined only to the extent that the frequency range 600 to 4800 Hz (speech frequency range) is adequately represented. In the speech material for discrimination testing, both aviation-relevant phrases and phonetically balanced words are normally used. Alternatively, a practical hearing test conducted in communication environment representative of the one for which the

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
	should be assessed in consultation with the licensing authority. ***(3)*** If the hearing requirements can be met only with the use of hearing aids, the hearing aids should provide optimal hearing function, be well tolerated and suitable for aviation purposes. **Class 1** ***(b)*** *Comprehensive otorhinolaryngological examination* A comprehensive otorhino-laryngological examination should include: ***(1)*** history; ***(2)*** clinical examination including otoscopy, rhinoscopy, and examination of the mouth and throat; ***(3)*** tympanometry or equivalent; ***(4)*** clinical assessment of the vestibular system. **Class 2** ***(b)*** *Examination* An ear, nose and throat (ENT) examination should form part of all initial, revalidation and renewal examinations.	certificate holder's licence and ratings are valid may be used. Otorhinolarygology examination reports and information are included as an attachment to this document. **Hearing Aids** For initial class 1 applicants, hearing aids are not usually acceptable. In an applicant who already holds a medical certificate, any type of hearing aid is acceptable for recertification, e.g. bone-anchored or intra-aural. Following insertion of the hearing aid, a functional hearing assessment must be performed and if satisfactory a return to certification is possible. A multi-crew restriction may be required for class 1 applicants. Note: For many pilots increasing the volume of the head set may be preferable and enhance hearing more than wearing hearing aids. For removable hearing aids, audiometry, if required, should be undertaken both with and without hearing aids. **Class 2 with Hearing Loss** Class 2 applicants who fail the conversational test at 2m are required to provide specialist medical reports detailing the cause of hearing loss and the results of pure tone audiometry. Functional testing in flight may be necessary. Otorhinolarygology examination reports and information are included as an attachment to this document.
(d) Aanvragers van een certificaat klasse 1 met: ***(1)*** een actief pathologisch proces, acuut of chronisch, van het binnen- of middenoor; ***(2)*** ongeheelde perforatie of disfunctie van het trommelvlies/de trommelvliezen;	**Class 1 & 2** ***(c)*** *Ear conditions* ***(1)*** An applicant with an active pathological process, acute or chronic, of the internal or middle ear should be assessed as unfit. A fit assessment may be considered once the condition has stabilised or there has been a full recovery. ***(2)*** An applicant with an unhealed perforation or dysfunction of the tympanic membranes should be assessed as unfit. An applicant with a single dry perforation of non-infectious origin and which does not interfere with the normal function of the ear may be considered for a fit assessment.	**Ear Conditions** A fit assessment can be considered after full recovery from a condition affecting the ear following provision of a satisfactory GP or specialist report. Complex conditions and class 1 certificate holders will require an ENT specialist assessment. If there is incomplete recovery from the condition, evidence that the condition has stabilised for an appropriate period of time is required. The audiogram standards must be met or a satisfactory functional hearing assessment is required. **Perforation** Recertification is possible after a

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
		minimum period of six weeks following a single dry perforation of non-infectious origin. A specialist report is required confirming complete healing and the pilot must be pain free. A satisfactory audiogram is required for class 1 or class 2 Instrument Rating (IR) recertification. **Stapedectomy** To ensure full healing, recertification is only allowed a minimum of three months after surgery, subject to a satisfactory specialist report confirming no complications, the absence of dizziness, spontaneous or positional nystagmus and a satisfactory hearing result. **Grommet insertion** This is acceptable for certification at both initial and revalidation/renewal. **Acoustic Neuroma** On diagnosis, the applicant should be made unfit. If clinical management is a 'watch and wait' policy, the applicant can be recertificated to class 1 OML/unrestricted class 2. Follow-up MRI reports should be forwarded to the Medical Assessor. An applicant with symptoms, or if a decision is made to treat, should be made unfit pending full recovery from symptoms or treatment. Following surgery, recertification depends on surgical approach, extent of removal and post op symptoms. If brain has been retracted during operation the risk of seizure should be considered. Normally, following full recovery, a fit class 1 OML or unrestricted class 2 assessment is appropriate. Can consider unrestricted class 1 at 12 months post-operatively if the imaging shows complete resection of the tumour and there are no seizures or balance disturbance. Following radiotherapy, certification is possible as class 1 OML/unrestricted class 2 on recovery (minimum 4 weeks following completion of treatment). Unrestricted certification can be considered 1 year after the completion date of radiotherapy, subject to imaging showing complete resection of the tumour and there being no seizures or balance disturbance.
(3) verstoring van de vestibulaire functie;	**Class 1** ***(d)*** *Vestibular disturbance*	**Benign Positional Vertigo/Labyrinthitis** In view of the recurrence risk of this

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
	An applicant with disturbance of vestibular function should be assessed as unfit. A fit assessment may be considered after full recovery. The presence of spontaneous or positional nystagmus requires complete vestibular evaluation by an ENT specialist. Significant abnormal caloric or rotational vestibular responses are disqualifying. Abnormal vestibular responses should be assessed in their clinical context. **Class 2** ***(d)*** *Vestibular disturbance* An applicant with disturbance of vestibular function should be assessed as unfit pending full recovery.	condition and the sudden incapacitating nature of the symptoms, the earliest a pilot can be considered for recertification is after they have been symptom-free and off any treatment for at least 4 weeks. Class 1 holders require an OML for a minimum period of 3 months from recertification. The use of any medication to treat vestibular symptoms, e.g. Betahistine is not acceptable for medical certification. **Meniere's Disease** A diagnosis of Meniere's Disease, untreated or treated is not acceptable for class 1 or 2 medical initial or recertification.
(4) significante restrictie van de neuspassages;	**Class 2** ***(h)*** *Air passage restrictions* An applicant with significant restriction of the nasal air passage on either side or significant malformation of the oral cavity or upper respiratory tract may be assessed as fit in ENT evaluation is satisfactory. ***(j)*** *Eustachian tube function* An applicant with significant dysfunction of the Eustachian tubes may be assessed as fit in consultation with the licensing authority.	
(5) sinusdisfunctie;	**Class 1 & 2** ***(e)*** *Sinus dysfunction* An applicant with any dysfunction of the sinuses should be assessed as unfit until there has been full recovery.	
(6) significante misvorming of significante, acute of chronische infectie van de mondholte of de bovenste luchtwegen;	**Class 1 & 2** ***(f)*** *Oral/upper respiratory tract infections* A significant, acute or chronic infection of the oral cavity or upper respiratory tract is disqualifying. A fit assessment may be considered after full recovery.	
(7) significante spraak- of stemstoornis;	**Class 1 & 2** ***(g)*** *Speech disorder* A significant disorder of speech or voice is disqualifying.	
moeten verder medisch onderzoek en beoordeling ondergaan om vast te stellen dat de aandoening de veilige uitoefening van de rechten verbonden aan het gehouden bewijs van bevoegdheid niet verstoort.		

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
(e) Luchtvaartmedische beoordeling: ***(1)*** Aanvragers van een certificaat klasse 1 met een verstoring van vestibulaire functie worden doorverwezen naar de autoriteit die het bewijs van bevoegdheid afgeeft; ***(2)*** De geschiktheid van klasse 2-aanvragers met een verstoring van vestibulaire functie wordt beoordeeld in overleg met de autoriteit die het bewijs van bevoegdheid afgeeft.		

Report specifications – Otorhinolaryngology

The following subheadings are for guidance purposes only and should not be taken as an exhaustive list.

1. **Diagnoses**

2. **History**
   - Presenting symptoms and date of onset
     - Otologic (e.g. deafness, tinnitus, vertigo, otalgia, discharge, fever, barotraumas)
     - Nasal (e.g. obstruction, discharge)
     - Throat/larynx
   - Duration of loss of consciousness
   - Circumstances surrounding onset, precipitating factors
   - Past history and family history of ENT disorders
   - Effect on daily activities/duties of working role, including altitude pressure changes and balance/orientation

3. **Examination findings relevant to condition**
   - Eustachian tubes (Valsalva manoeuvre)
   - Tympanic membrane integrity (perforations)
   - Hearing function Weber and Rinne tests
   - Vestibular function
   - Oropharynx

4. **Findings of investigations performed (as applicable)**
   - Pure tone audiometry – required for all cases of hypoacusis
     - Up to date audiogram required post treatment when symptoms are fully resolved
     - Tympanometry
   - Imaging reports (CT, MRI)
   - Histology reports
   - Other procedures and investigations

5. **Treatment**
   - Past, recent and ongoing treatment must be detailed
   - Current and recent past medications (dose, frequency, start and finish dates)
   - Confirmation of no side effects from medication
   - Surgical reports

6. **Follow up and further investigations/referrals planned or recommended (as applicable)**
   - Anticipated follow up/frequency of clinical reviews and investigations
   - Prognosis and risk of recurrence
   - Confirmation of full recovery at date of report

7. **Clinical implications**
   - Any concerns regarding disease progression, treatment compliance or risk of sudden incapacity, difficulties with environmental pressure change or balance/orientation

MED.B.085 – Dermatologie

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
Aanvragers mogen geen vastgestelde dermatologische aandoening hebben die de veilige uitoefening van de rechten verbonden aan het/de toepasselijke bewijs/bewijzen van bevoegdheid waarschijnlijk verstoort.	**Class 1** ***(a)*** Referral to the licensing authority should be made if doubt exists about the fitness of an applicant with eczema (exogenous and endogenous), severe psoriasis, bacterial infections, drug induced, or bullous eruptions or urticaria. ***(b)*** Systemic effects of radiant or pharmacological treatment for a dermatological condition should be considered before a fit assessment can be considered. **Class 1&2** ***(c)*** In cases where a dermatological condition is associated with a systemic illness, full consideration should be given to the underlying illness before a fit assessment can be considered.	**Dermatology** Information – Dermatological conditions certification **Other relevant documents** Information – Malignant melanoma certification

Information – Dermatological conditions certification

Acne, Eczema, Psoriasis, Photosensitivity, Bullous eruptions

As long as these conditions are under sufficiently good control so that there is:

- no significant irritation or distraction;
- no possibility of a sudden flare-up with significant symptoms;
- acceptable treatment (see below),

then certification can be maintained.

Otherwise the pilot will need to be declared 'unfit' and a report sought from a consultant dermatologist. Class 2 OSL may be considered in some cases. In all cases where doubt exists or control is sub-optimal an opinion should be sought from a consultant dermatologist.

Many topical treatments are acceptable after refraining from flying whilst symptoms are brought under control and ensuring that there are no side effects from the treatment. A few topical treatments can themselves cause irritation/pruritis or even drowsiness. Long-term low dose erythromycin or tetracycline treatment for acne is acceptable following 2 days of refraining from flying after initially starting treatment whilst ensuring that no side-effects occur.

Care must be taken to ensure that associated conditions e.g., arthropathy with psoriasis, are considered.

Skin infections

Provided that the infection is not of risk to others, that there is no significant irritation or distraction, and that the infection is limited to the skin and not systemic, there is no restriction to certification. Acute infections, where the immediate course is uncertain, require a period off flying until resolved. Topical antibiotics, antifungals or antiviral treatments are acceptable after refraining from flying whilst symptoms are brought under control and ensuring that there are no side effects from the treatment.

The only systemic antifungal that is permitted is Terbinafine for fungal infection of the nails. Flying is not permitted within two weeks of the start of treatment and liver function tests need to be monitored throughout treatment.

Skin malignancy

Squamous cell carcinoma, Bowen's disease and Paget's disease of the nipple are disqualifying before treatment. Unrestricted certification for class 1 and class 2 is possible for localised disease after complete excision, provided confirmation of this is obtained from the relevant specialist and adequate follow-up is in place.

Basal cell carcinoma, keratoacanthoma, actinic keratosis must be treated as soon as possible after diagnosis. Immediate grounding is not necessary, however specialist reports should be obtained following treatment. Unrestricted certification for class 1 and class 2 is acceptable following full excision or satisfactory alternative treatment.

MED.B.090 – Oncologie

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
(a) Aanvragers mogen geen vastgestelde primaire of secundaire kwaadaardige aandoening hebben die de veilige uitoefening van de rechten verbonden aan het/de toepasselijke bewijs/bewijzen van bevoegdheid waarschijnlijk verstoort. ***(b)*** Na behandeling voor een kwaadaardige aandoening kan pas een beoordeling van geschiktheid worden gemaakt wanneer aanvragers een oncologische evaluatie met een bevredigend resultaat hebben ondergaan. Klasse 1-aanvragers worden doorverwezen naar de autoriteit die het bewijs van bevoegdheid afgeeft. De geschiktheid van klasse 2-aanvragers wordt bepaald in overleg met de autoriteit die het bewijs van bevoegdheid afgeeft. ***(c)*** Aanvragers met een vastgestelde geschiedenis of klinische diagnose van een intracerebrale kwaadaardige tumor worden als ongeschikt beoordeeld.	**Class 1** ***(a)*** Applicants who underwent treatment for malignant disease may be assessed as fit by the licensing authority if: ***(1)*** there is no evidence of residual malignant disease after treatment; ***(2)*** time appropriate to the type of tumour has elapsed since the end of treatment; ***(3)*** the risk of in-flight incapacitation from a recurrence or metastasis is sufficiently low; ***(4)*** there is no evidence of short or long-term from treatment that may adversely affect flight safety. Special attention should be paid to applicants who have received anthracycline chemotherapy; ***(5)*** satisfactory oncology follow-up reports are provided to the licensing authority. ***(b)*** A multi-pilot limitation should be applied as appropriate. ***(c)*** Applicants with pre-malignant conditions of the skin may be assessed as fit if treated or excised as necessary and there is regular follow-up. **Class 2** ***(a)*** Applicants who underwent treatment for malignant disease may be assessed as fit by the licensing authority if: ***(1)*** there is no evidence of residual malignant disease after treatment; ***(2)*** time appropriate to the type of tumour has elapsed since the end of treatment; ***(3)*** the risk of in-flight incapacitation from a recurrence or metastasis is sufficiently low; ***(4)*** there is no evidence of short or long-term from treatment that may adversely affect flight safety; ***(5)*** special attention is paid to applicants who have received anthracycline chemotherapy; ***(6)*** arrangements for an oncological follow-up have been made for an appropriate period of time. ***(b)*** Applicants with pre-malignant conditions of the skin may be assessed as fit if treated or excised as necessary and there is a regular follow-up.	On reporting a diagnosis of malignancy, applicants should be assessed as unfit. Recertification can be considered following receipt of a satisfactory specialist report. Report specifications – Oncology Note 1: All class 1 applicants shall be referred to the Medical Assessor. Note 2: class 2 applicants shall be discussed with the Medical Assessor. **For recertification:** • Treatment completed • Full recovery • No symptoms that could affect flight safety • No complications, or if any, appropriate investigation and specialist referral may be required **Chemotherapy** ***1.*** Recertification a minimum of 6 weeks after the last dose of chemotherapy, subject to satisfactory blood tests results (HT, urea and electrolytes, liver function tests, relevant tumour markers as a minimum). ***2.*** If any complications from treatment, need full recovery. If unresolved, may require appropriate specialist assessment, e.g. neuropathy may require a specialist neurology assessment. ***3. Class*** 1 pilots who have had anthracycline (e.g. doxorubicin, adriamycin, daunorubicin) require cardiological assessment in accordance with: Flowchart – Anthracycline treatment certification **Radiotherapy** ***1.*** Recertification a minimum of 4 weeks after the last dose of radiotherapy. ***2.*** If any complications from treatment, need full recovery. If unresolved, appropriate specialist assessment required e.g. radiation pneumonitis/pulmonary fibrosis requires a specialist respiratory assessment. **Surgery**

Uitvoeringsvoorschriften Implementing Rules	Aanvaardbare Wijzen van Naleving Acceptable Means of Compliance	Richtlijnen Guidance Material
		As a guide, minimum post-operative grounding periods: Minor – 1 week (e.g. skin lesion) Intermediate – 6 weeks (e.g. prostatectomy (TURP)) Major – 3 months (e.g. hemicolectomy) **Metastatic disease** Metastatic disease is disqualifying for class 1 and class 2 certification. In exceptional cases, class 2 OSL may be considered by the Medical Assessor only. Incapacitation risks are based on: ***1.*** Risk of a recurrence ***2.*** Site of the recurrence ***3.*** Risk of a recurrence at that site leading to an incapacitation. Information – Oncology charts for certification assessments Oncology certification charts exist for these tumour types: • Colorectal • Breast cancer • Malignant melanoma • Testicular germ cell tumour • Renal cell carcinoma • Non-small cell lung cancer Information – Malignancies of the immune system certification (All class 1 cases should be referred to the Medical Assessor.) The above guidance is also available in Ernsting's Textbook of Aviation Medicine 4th Edition, Chapter 44, Malignant Disease. Information – Prostate cancer guidance

Report specifications – Oncology

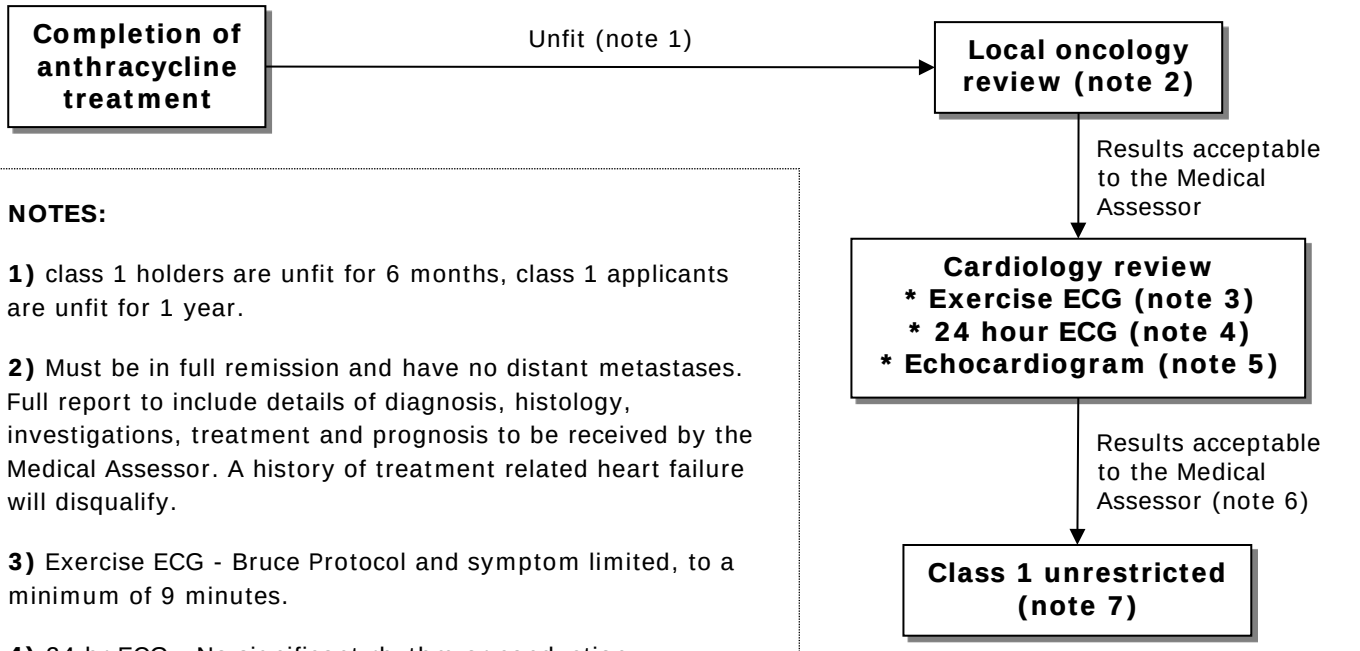
To return to flying:

1. There must be no evidence of residual malignant disease after treatment.
2. Adequate time must have elapsed appropriate for a full recovery, at least 6 weeks following chemotherapy and 4 weeks following radiotherapy.
3. There must be no evidence of complications from treatment likely to interfere with flight safety.
4. The risk of in-flight incapacitation must be no greater than:
    - 1% per annum (Class 1 OML, class 2 unrestricted)
    - 5% per annum (Class 2 OSL)

A medical report may be provided to the Medical Assessor (Class 1) or AME (Class 2) with the following information:

1	History	Presentation and course of illness including dates	
2	Diagnosis		
3	Results of radiological investigations	CT/MRI scan, ultrasound, bone scan, chest x-ray, other	
4	Blood test results	Haematology (HT, liver function tests, etc), tumour markers	
5	Grade of tumour	Including copies of histology reports	
6	Stage of tumour	TNM or other staging	
7	Site of any distant disease		
8	Types and dates of treatment	i. Surgery ii. Chemotherapy (curative / adjuvant / palliative) (specify if anthracylines) iii. Radiotherapy (curative / adjuvant / palliative) iv. Hormone therapy	
9	Complications from treatment	Investigations or referral to other specialists	
10	Follow-up plan	Frequency of clinical radiological imaging and tumour markers	
11	Ongoing treatment	All ongoing treatment should be specified	
12	Prognostic factors	Adverse or good	
13	Prognosis	Event free survival Disease free survival Overall survival	1 year, 5 years and 10 years
14	Risk of possible future recurrence / metastasis	i. What are the most likely sites of recurrence / metastases? ii. What is the risk of cerebral metastasis? iii. What are the likely clinical presentations of recurrences / metastases? iv. Could these symptoms be incapacitating? v. Could a recurrence / metastasis be detected before symptoms develop by increasing the frequency or types of surveillance (radiological imaging / blood tests)?	
15	References to medical literature	Provide and relevant references in medical literature, especially for are malignancies.	

Flowchart – Anthracycline treatment certification



NOTES:

1) class 1 holders are unfit for 6 months, class 1 applicants are unfit for 1 year.

2) Must be in full remission and have no distant metastases. Full report to include details of diagnosis, histology, investigations, treatment and prognosis to be received by the Medical Assessor. A history of treatment related heart failure will disqualify.

3) Exercise ECG - Bruce Protocol and symptom limited, to a minimum of 9 minutes.

4) 24 hr ECG - No significant rhythm or conduction disturbance. Short burst of SVT may be acceptable. VT will require further investigation.

5) Echocardiogram - Structurally normal heart and normal LV and RV function.

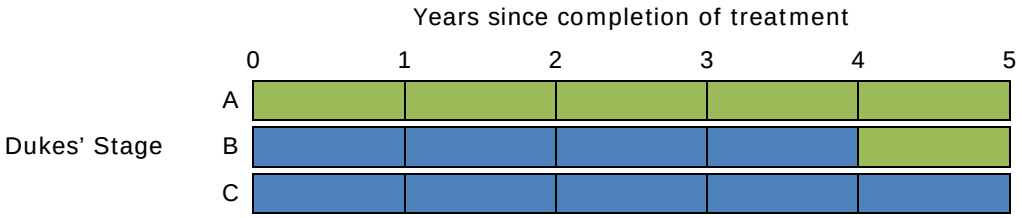
6) The cardiology report will be reviewed by the Medical Assessor. It may be necessary to see the investigations, in which case the actual tracings/films/videos will be requested.

7) Initially, annual cardiology review with echocardiogram, 24-hour and exercise ECG. Subsequently, reduced follow-up requirements may be acceptable at the Medical Assessor's discretion.

Information – Oncology charts for certification assessments

Note: All class 1 holders should be referred to the Medical Assessor.

Colorectal cancer

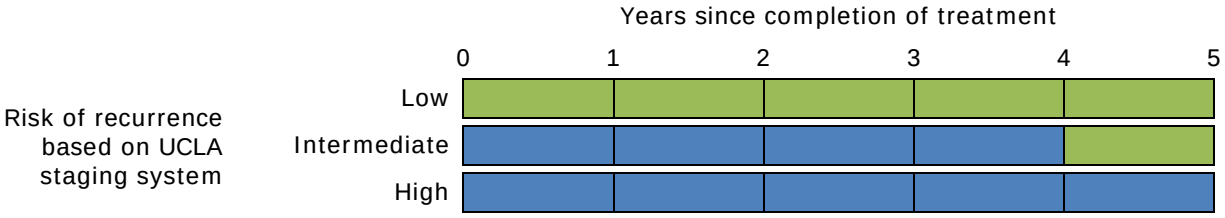


- Dukes' Stage A = T_{1-2}
- Dukes' Stage B = T_{3-4}

= class 1 & 2 unrestricted

= class 1 OML, class 2 unrestricted

Renal cell carcinoma



= class 1 & 2 unrestricted

= class 1 OML, class 2 unrestricted

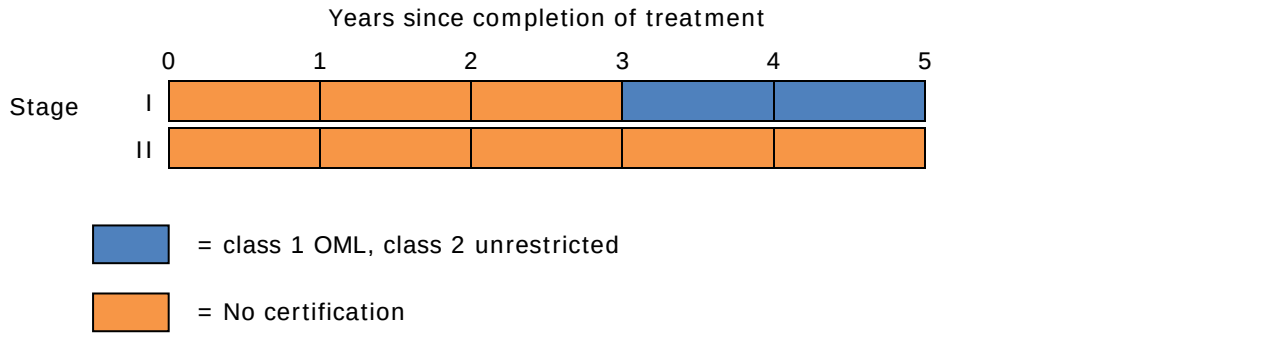
UCLA integrated staging system N_0M_0 renal cell carcinoma

Risk Factor	T Stage	Grade	Performance Status	5 year survival
Low	1	1 – 2	0	91%
Intermediate	1, 2 or 3	Any	Any	71% – 80%
High	4 or 3	Any	0 or 1+	40% - 55%

Performance Status is determined according to the Eastern Co-operative Oncology Group criteria.

(UCLA = University of California Los Angeles)

Non-small cell lung cancer



Breast cancer

15 year survival for breast cancer using the NPI prognostic groups

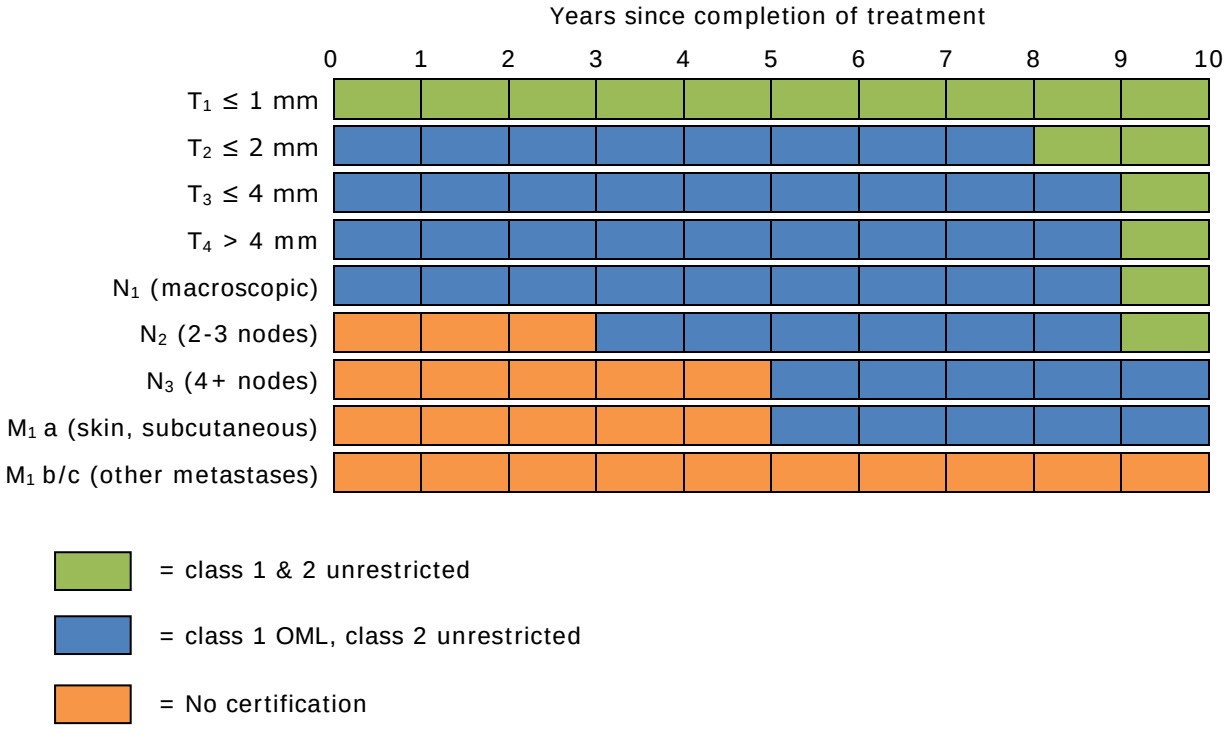
Prognosis	NPI	15 year survival
Good	< 3,4	80%
Moderate	3,4 – 5,4	42%
Poor	> 5,4	13%

The most significant indicators of prognosis are tumour grade, stage as indicated by histological lymph node involvement and tumour size. The Nottingham Prognostic Index (NPI) (Haybittle, 1982) uses these factors to predict outcome on an individual basis by applying the formula:

NPI = 0,2 × size (in cm) + Stage (I-III) + Grade (1-3; good, moderate, poor)

- Stage I = No lymph node involvement
- Stage II = Lower axillary or internal mammary nodes positive
- Stage III = Apex or both axillary and mammary nodes positive

Primary cutaneous melanoma



Pathological stage	Clinical stage	Tumour thickness	Nodes	Metastases
I	T1	≤ 1 mm	No	No
	T2	1 – 2 mm	No	No
II	T3	2 – 4 mm	No	No
	T4	> 4 mm	No	No
III	N1	Any	1	No
	N2	Any	2 – 3	No
	N3	Any	4+	No
IV	M	Any	Yes / No	Yes

Germ cell tumour of the testis

International Germ Cell Cancer Collaborative Group (IGCCCG) Prognosis

Good prognosis

All seminoma except non-pulmonary metastases

NSGCT: AFP < 1.000
hCG < 5.000
LDH < 1,5 × normal

Intermediate prognosis

Seminoma with non-pulmonary metastases

NSGCT: AFP < 10.000
hCG < 50.000
LDH up to 10 × normal

Poor prognosis

NSGCT: AFP > 10.000
hCG > 50.000
LDH more than 10 × normal

AFP = alphafoetoprotein in ng/ml
hCG = human chorionic gonadotrophin in iu/l
LDH = lactate dehydrogenase

Information – Prostate cancer guidance

Note: All class 1 holders should be referred to the Medical Assessor.

A. On reporting a diagnosis of prostate cancer the pilot should be assessed as unfit pending receipt of satisfactory reports.

B. A specialist report is required to include:

1. Grade (Gleason score)
2. Stage
3. Any extra-capsular spread
4. Any distance spread
5. Pre and post treatment PSA
6. Imaging results: MRI, bone scan
7. Treatment, including dates
8. Prognosis
9. Follow-up plan: clinical reviews / PSA tests / imaging

C. Requirements for recertification:

1. No metastases. (Note: exceptionally, class 2 with OSL may be possible; such cases should be referred to the Medical Assessor)
2. Satisfactory treatment response, demonstrated by decrease in PSA level, if elevated. (Note: 15% of prostate cancer is associated with normal PSA levels)
3. Full recovery from treatment.
4. No symptoms / complications that could affect flying. If any complications, appropriate investigations and specialist referral is required.
5. Time to recertification depends on treatment received (see table below).

D. Time to recertification after common treatments:

Treatment	**Prostatectomy** (TURP / Radical)	**Radiotherapy** (External)	**Brachy-therapy** (Internal)	**Hormone therapy ***	**'Watchful waiting' / Active surveillance**
Requirements	Minimum of 6 weeks after prostatectomy	Minimum of 4 weeks after last dose radiotherapy	Minimum of 6 weeks after insertion	Minimum of 4 weeks on maintenance dose, stable and without side-effects.	Minimum of 3 monthly specialist reviews with PSA tests. Follow-up reports must be submitted to the: Medical Assessor for class 1 and AME for class 2
Certification	Class 1 unrestricted (high grade or extra-capsular spread may require an OML) Class 2 unrestricted				Class 1 OML Class 2 unrestricted
Follow-up requirements after recertification					AME will require follow up reports after each clinical review, or at least annually. A recurrence of symptoms, or rise in PSA suggestive of a recurrence, should entail unfitness.

* Acceptable treatments: anti-androgens, e.g. bicalutamide, LHRH agonists, e.g. goserelin.

Note: Other treatments (such as but not limited to chemotherapy, cryotherapy, steroids and High Intensity Focused Ultrasound) should be referred to the Medical Assessor.

Bijlagen

In dit pdf-document zijn de volgende documenten bijgesloten:

- Application Form Nederlands
- Application Form English
- Instructions for completion of the application form for a medical certificate
- Medical Examination Report Nederlands
- Medical Examination Report English
- Instructions for completion of the medical examination report forms
- Ophthalmology Examination Report Nederlands
- Ophthalmology Examination Report English
- Instructions for completion of the ophthalmology examination report form
- Otorhinolaryngology Examination Report Nederlands
- Otorhinolaryngology Examination Report English
- Instructions for completion of the otorhinolaryngology examination report form
- Medical flight test report
- Zwangerschap en vliegen

Deze bijlagen kunnen gevonden worden door links op de paperclip te klikken in Acrobat Reader of in de werkbalk naar Beeld ⟶ Tonen/verbergen ⟶ Navigatievensters ⟶ Bijlagen te gaan.

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Let op, voor informatie over (uw) medische keuring(en) moet u contact opnemen met uw luchtvaartmedische arts of centrum. Voor vragen en informatie over de inhoud van dit document kunt u terecht bij bovenstaand e-mailadres en telefoonnummer.